NOTICE OF FINAL RULEMAKING
MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS
REGULATION III
RULE 310 – FUGITIVE DUST,
APPENDIX C - FUGITIVE DUST TEST METHODS,
APPENDIX F – SOIL DESIGNATIONS

PREAMBLE

1. Sections affected — **Rulemaking action**

Rule 310, all sections	Amend
Appendix C, section 3	Amend
Appendix F, all sections	New

2. Statutory authority for the rulemaking:

Authorizing statutes: Arizona Revised Statutes, Title 49, Chapter 3, Article 3, Sections 479 and 480 (A.R.S. § 49-479, A.R.S. § 49-480)

Implementing statute: Arizona Revised Statutes, Title 49, Chapter 1, Article 1, Section 112 (A.R.S. § 49-112)

3. The effective date of the rules:

Date of adoption: April 7, 2004

4. List of all previous notices appearing in the register addressing the proposed rules:

a. Notice of Rulemaking Docket Opening – Rule 310:
Volume #9 A.A.R. Issue #20, p. 1473, May 16, 2003

b. Notice of Rulemaking Docket Opening – Appendix C:
Volume #9 A.A.R. Issue #39, p. 4136, September 26, 2003

c. Notice of Rulemaking Docket Opening – Appendix F:
Volume #9 A.A.R. Issue #43, p. 4569, October 24, 2003

d. Notice of Proposed Rulemaking – Rule 310, Appendix C, Appendix F:
Volume #9 A.A.R. Issue #44, p. 4674, October 31, 2003

5. Name and address of agency personnel with whom persons may communicate regarding the rulemaking:

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6. An explanation of the rule, including the department's reasons for initiating the rules:

Rule 310, originally adopted in July 1988, is Maricopa County's rule for controlling fugitive dust emissions. Because Maricopa County is a serious nonattainment area for PM10, the Maricopa County Environmental Services Department (MCESD) helped develop a PM10 serious area nonattainment plan for the Arizona State Implementation Plan (SIP). The Environmental Protection Agency (EPA) approved the plan in April of 2002, contingent on the completion of three commitments by Maricopa County (See 65 Fed. Reg. 19964 (2000) and 67 Fed. Reg. 48717 (2002)). These revisions to Rule 310, Appendix C, and new Appendix F address the commitments.

Commitment #1: Maricopa County's first commitment was to "research and develop a standard(s) and test method(s) for earthmoving sources, considering our field research, that are enforceable and meet BACM requirements on stringency and source coverage." (65 Fed. Reg. 19964, 19980). The EPA requested this commitment to address its concern that the existing opacity standard and test method in Appendix C for earthmoving operations is not always sufficient to control construction site dust to BACM levels. Although the opacity test method was revised in the year 2000, the EPA believes that additional revisions are necessary to fully assure that fugitive dust is effectively controlled.

To meet this commitment, Maricopa County amended Appendix C of the Maricopa County Air Pollution Control Regulations, which outlines test methods used for fugitive dust observations. After much field research with the cooperation of the EPA and Clark County, Nevada, Maricopa County revised Section 3 of Appendix C by establishing test methods for non-continuous and continuous plumes from dust generating operations.

Commitment #2: Maricopa County's second commitment was to "research, develop and incorporate additional requirements for dust suppression practices/equipment for construction activities into dust control plans and/or Rule 310" (65 Fed. Reg. 19964, 19980). The second commitment addresses the EPA's concerns that dust control plans lack source-specific criteria for varying dust control measures. A specific example the EPA gives is that of a source engaged in grading or cut-and-fill earthmoving operations for a multi-acre project that chooses to comply with Rule 310 by applying water. Neither the rule nor the source's dust control plan establishes minimum criteria for the number and size of water trucks/water applications systems for any given

size construction site or a ratio of earthmoving equipment to water trucks. (65 Fed. Reg. 19964, 19980).

Maricopa County added new provisions to Rule 310, itself, and revised dust control plan forms and permit application forms to incorporate the proposed rule revisions and clarify the instructions and layout. In Rule 310, new requirements include:

- Dust control on all paved areas accessible to the public;
- The presence of water sources on-site at projects 1 acre or larger;
- Trackout control devices at sites two acres or larger; and
- Soil type statements for construction projects one acre or larger.

New Appendix F addresses the soil statements required to meet Commitment #2. The appendix contains soil type descriptions and a map of soil textures throughout Maricopa County. Regulated sources should provide soil test results but in the event soil test results are not available, the soil type map may be used as default information on permit applications. Maricopa County is currently developing a guidance document outlining what types of control measures should be used for various soil characteristics.

Secondly, to meet Commitment #2, Maricopa County revised dust control permit applications to more clearly request the information that is required in order to evaluate chosen control measures. With this information provided up front, Maricopa County expects to be able to approve or disapprove dust control plans based on whether specified control measures will be effective at each unique site. A dust generating operation will not be able to obtain an earthmoving permit until a satisfactory dust control plan is submitted and approved by the Environmental Services Department.

Commitment #3: Maricopa County's third commitment was to "revise the sample daily recordkeeping logs for new and renewed Rule 310 permits to be consistent with rule revisions and to provide sufficient detail documenting the implementation of dust control measures required by Rule 310 and the dust control plan. Distribute sample log sheets with issued permits and conduct outreach to sources." (65 Fed. Reg. 19964, 19980). This commitment addresses the EPA's concern that while Rule 310 currently contains acceptable recordkeeping requirements, a more specific recordkeeping requirement would help improve compliance.

To address this commitment, Maricopa County had, prior to this rulemaking, revised sample record keeping logs and made them widely available to regulated sources and the public. Additionally, in this rulemaking, Maricopa County clarified the recordkeeping requirements listed

in Rule 310, Section 500 to reflect the changes to the sample forms. Changes to Section 500 include providing examples of dust suppression activities for which recordkeeping is required.

Other revisions to Rule 310 and appendices improve clarity, fix typographical and formatting errors, and increase rule enforceability.

7. Demonstration of compliance with A.R.S. § 49-112:

Under A.R.S. § 49-479(c), a county may not adopt a rule that is more stringent than the rules adopted by the director of the Arizona Department of Environmental Quality (ADEQ) for similar sources unless it demonstrates compliance with the requirements of A.R.S. § 49-112. Under that statute:

> When authorized by law, a county may adopt a rule, ordinance, or other regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all the following conditions are met:
>
> 1. The rule, ordinance or other regulation is necessary to address a peculiar local condition;
> 2. There is credible evidence that the rule, ordinance or other regulation is either:
>   (a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible
>   (b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the County rule, ordinance or other regulation is equivalent to federal statutes or regulations.

A.R.S. § 49-112 (A).

MCESD revised Rule 310, Appendix C, and Appendix F in order to address a peculiar local condition: The designation of Maricopa County as a serious nonattainment area for PM10. Maricopa County is the only serious nonattainment area for PM10 in Arizona; consequently stronger regulations must be adopted in this area to address a serious health threat. Because of this, the revision complies with A.R.S. § 49-112 (A)(1). Additionally because Rule 310 is part of the Arizona State Implementation Plan for the control of PM10, the regulation is federally enforceable and changes are required under 40 C.F.R. 51.120 (c)(102) to effect enforceable

commitments made by Maricopa County. Therefore the rule revisions are also made pursuant to A.R.S. § 49-112 (2).

8. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

a. Maricopa County Particulate Control Measure Feasibility Study, January 24, 1997
   Prepared by: Sierra Research, Inc. Sacramento, CA
b. San Joaquin Valley Particulate Control Final BACM Technological and Economic Feasibility Analysis, March 21, 2003
   Prepared by: Sierra Research, Inc. Sacramento, CA
c. Air Quality Regulations and Construction Activities Dust Control Handbook, Clark County Nevada Department of Air Quality Management

These publications are available at the Maricopa County Environmental Services Department building. See #4 above.

9. Summary of the economic, small business, and consumer impact:

Economic Impacts On Regulated Sources:

Collectively, construction site operations emissions (24.5%) and windblown emissions (2.5%) are the second largest contributor of PM10 emissions in the Phoenix area, according to the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10. Sources of fugitive dust emissions at construction sites include land clearing, earthmoving, excavating, construction, demolition, material handling, bulk material storage and/or transporting operations, material trackout or spillage onto paved roads, and vehicle use and movement on site (e.g., the operation of any equipment on unpaved surfaces, unpaved roads, and unpaved parking areas). Windblown emissions from disturbed surface areas and inactive storage piles on construction sites are also a source of fugitive dust. Emission reductions in 2006, the PM10 attainment date, are estimated as 66% reduction from construction dust and 66% reduction from construction trackout.

Over the past 5 years, violations of the annual PM10 standard have occurred routinely at 3 sites: (1) an urban site heavily impacted by transportation sources, (2) an urban fringe site heavily impacted by fugitive dust sources such as construction and agriculture, and (3) a site heavily impacted by industrial sources. These primary contributors to elevated PM10 emissions can be found throughout the Maricopa County nonattainment area and collectively number in the thousands. Population exposure to elevated levels of PM10 is estimated to be from 78,000 to

163,000. 84% of Maricopa County's population lives in areas where 10% or less of the land is open.

The Maricopa Association Of Governments was designated to serve as the Regional Air Quality Planning Agency to develop plans to address PM10, carbon monoxide, and ozone. On January 14, 2002, the EPA took final action to approve the revised 1999 Serious Area Particulate Plan for PM10 for the Maricopa County nonattainment area. The revised 1999 Serious Area Particulate Plan for PM10 demonstrates attainment by December 31, 2006. As approved, the plan contains approximately 77 committed control measures from state and local governments. All of the commitments are at least best available control measures (BACM) and, at most, most stringent measures (MSM). The key measures in the revised 1999 Serious Area Particulate Plan for PM10 used for the attainment demonstration include: strengthening and better enforcement of fugitive dust control rules regarding construction dust - 19.1% PM10 reduction; strengthening and better enforcement of fugitive dust control rules regarding trackout and paved road dust – 9.7% PM10 reduction; reducing particulate emissions from unpaved roads and alleys- 5.8% PM10 reduction , and reducing particulate emissions from unpaved parking lots – 1.8% PM10 reduction.

Maricopa County helped develop the revised 1999 Serious Area Particulate Plan for PM10 and agreed to three commitments: (1) to research and develop a standard(s) and test method(s) for earthmoving sources, considering our field research, that are enforceable and meet BACM requirements on stringency and source coverage, (2) to research, develop and incorporate additional requirements for dust suppression practices/equipment for construction activities into dust control plans and/or Rule 310, and (3) to revise the sample daily recordkeeping logs for new and renewed Rule 310 permits to be consistent with rule revisions and to provide sufficient detail documenting the implementation of dust control measures required by Rule 310 and the dust control plan. Distribute sample log sheets with issued permits and conduct outreach to sources.

The revisions to Rule 310, Appendix C, and new Appendix F address these commitments:

Rule 310, Section 201: The definition of "area accessible to the public" has been revised to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots. The revised definition of "area accessible to the public", as reflected in amendments adopted by the Board Of Supervisors during the Public Hearing on April 7, 2004, is the product of Maricopa County's collaboration with small businesses to design a definition that meets the needs of the regulated community while meeting Maricopa County's commitments in the Serious Area PM10 Plan.

Because of the expansion of the "public access" theory, dust generating operations may have increased areas in which they have to use certain dust control measures. Maricopa County predicts that the number of projects that will be newly affected by this change in terminology will be small. Additionally because of existing dust management requirements, it is expected that sources affected by this change have the necessary equipment to easily implement the new standard.

Rule 310, Section 304.6: An additional requirement for construction projects one acre or larger to disclose, in their dust control plans, what types of soil are present at the project site and what types of soil are to be imported, if necessary, onto the project site has been included in Rule 310. Many projects must test soil characteristics anyway in order to ensure the structural integrity of project designs and materials and/or to comply with the Arizona Pollutant Discharge Elimination System (AZPDES) program. Those projects that do not test soils may refer to the soil map in Appendix F as default information.

Rule 310 requires that activities on construction sites must meet a 20% opacity standard. Per the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10, if research on the standards and test methods find problems with the existing opacity standard's enforceability, feasibility, or stringency for some or all earthmoving operations, Maricopa County must revise Rule 310 to modify the existing opacity test method to address the problems as warranted or adopt a new standard(s) and test method(s) to deal with any problems that cannot be addressed by modifying the opacity test method.

Maricopa County's commitment to research and develop standard(s) and test method(s) for earthmoving sources, considering the EPA's field research, that are enforceable and meet best available control measures (BACM) and most stringent measures (MSM) requirements on stringency and source coverage, addresses the EPA's concern that the existing opacity standard and test method for earthmoving operations may not always be sufficient to control construction site dust to BACM levels. By revising Appendix C, Maricopa County has revised the opacity test method to deal partially with this concern, but the EPA believes that additional standards/test methods are needed to fully assure that sources are effectively controlled. For example, it is unclear whether the test method can be effectively used when dust plumes are generated by heavy vehicles in "turn-around" areas that may be used only infrequently.

The EPA sponsored a field study in Phoenix to compare fugitive dust emissions from uncontrolled earthmoving activities and from earthmoving activities after water has been applied and to investigate various benchmarks for determining when an acceptable amount of dust control has

been achieved. The purpose of the project was (1) to investigate the relative reduction in PM10 fugitive dust emissions from uncontrolled earthmoving activities when soil moisture content is increased through application of water and (2) to evaluate control strategies associated with this reduction. The technical approach centered on PM10 dustiness testing of Maricopa County (Phoenix area) soil samples taken from active construction sites to determine the relationship between PM10 emission potential and moisture content of the soil. Ultimately, it was intended that the relationship would be converted to PM10 control efficiency as a function of moisture addition above the dry soil moisture levels.

Per the "Analysis Of Moisture Effects On Emissions From Construction Activities" prepared by Midwest Research Institute in July 2000, the results of the project revealed that the PM10 emission potential of soils that are representative of Maricopa County construction sites can be reduced substantially by increasing the moisture content. For example, doubling the moisture content of the dry soil can reduce emissions by approximately 90%. However, the dry soil found in the Maricopa County area is difficult to wet because of its hydrophobic nature. More than 2 weeks of continuous water application is required for penetration to a depth of several feet below the surface. Dry, spotty areas of un-watered soil in the path of large construction equipment can cause much of the dust problem. This condition is likely to occur if short-term watering is used as a means for raising soil moisture in areas where soil removal takes place. Summertime conditions are expected to produce challenging conditions for soil watering as a control method because of rapid soil drying. The soil moisture gradient is expected to be significantly higher under summer conditions; summer conditions quickly dry the uppermost soil layer, which is the most significant source of PM10. Therefore, more frequent water application will be required to achieve a control equivalent to that achieved in winter conditions.

Rule 310, Section 308: The requirement for trackout control devices from disturbed work areas that are 5 acres or larger has been modified to include disturbed work areas that are 2 acres or larger. The new threshold of 2 acres or larger, as reflected in amendments adopted by the Board Of Supervisors during the Public Hearing on April 7, 2004, is the product of Maricopa County's collaboration with small businesses and has been designed to meet the needs of the regulated community while meeting Maricopa County's commitments in the Serious Area PM10 Plan.

While requiring trackout control devices from disturbed work areas that are 2 acres or larger increases the number of work sites that must now install a trackout control device, Maricopa County anticipates that this requirement will be wholly or partially offset by reductions in other dust control costs. For example, a trackout control device can obviate or reduce the need for both manual and mechanical street sweeping and any other methods of keeping roadways clean.

Maricopa County concluded from field observations and from a review of enforcement actions that smaller sites frequently have trackout problems. Many of those sites resolve their trackout problems by installing trackout control devices. Further, changing the threshold for requiring a trackout control device for disturbed work areas that are 2 acres or larger corresponds with the threshold in similar regulations - Phase II of the National Pollutant Discharge Elimination System (NPDES) storm water program and the Storm Water Pollution Prevention Plan (SWPPP). Effective March 10, 2003, these regulations now also apply to construction sites from 1 to 5 acres in size.

Per the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10, paved road dust (which also includes trackout from construction sites) is fugitive dust that is deposited on a paved roadway and then is re-entrained into the air by the action of tires grinding on the roadway. Emissions of paved road dust are proportional to vehicle miles traveled. Re-entrained road dust emission rates are not affected by vehicle speed but are affected by the silt loading on the road and amount of vehicle travel on a road. Where unpaved shoulders exist, the volume of heavy-duty truck traffic can affect emissions in that the wind currents created from truck undercarriages can pick up more fugitive dust from shoulders than other vehicles. Emissions rates are lower per mile traveled on more traveled roads than they are on roads that receive less traffic.

Paved road dust is one of the largest categories of PM10 emissions accounting for 39.1% of the total directly-emitted, non-windblown 1994 PM10 inventory and 20.4% of the 2006 pre-control total (including windblown) PM10 inventory. Total uncontrolled paved road dust emissions increase by almost 30% from 1995 to 2006 due to the increase in vehicle miles traveled.

Installing trackout control devise(s) minimizes street cleaning costs. According to vendor estimates, the cost (in terms of 1994 dollars per pound of PM10 reduced) of a high efficiency vacuum sweeper for street sweeping is $230,000. This high efficiency vacuum sweeper for street sweeping has only recently been developed and tested in communities on the West coast. The maintenance cost is estimated to be $30,000 per year, based on data collected in the report "Street Sweeping Study" prepared for the Coachella Valley Association Of Governments.

Installing trackout control device(s) meets regulatory requirements. The best available control measure (BACM) plan for the South Coast Air Quality Management District estimated (in terms of 1994 dollars per pound of PM10 reduced) the cost of constructing a paved access approach to be $8,496. This would cover a 0.055 acre area (i.e., 2,400 square feet) with a pavement thickness

of 2 inches and an 8-inch aggregate base. An additional cost element is the minor grading required to establish a smooth transition to the edge of the road pavement. In addition, the cost of reducing fugitive dust emissions by 70% on haul road use (20 trips per day) is estimated to be $9, 774 for a small industrial site with 0.6 miles of haul road. As emissions are generated only on days when the site is in operation, the average daily cost is measured on the basis of site operation days estimated to be 248 per year. This yields a cost of $39.41 per site per operating day and a daily reduction of 157.56 pounds of PM10.

Based on emissions inventory data collected by Engineering Science, the costs of implementing dust control plans for a 300-acre residential construction project is estimated to be $5,000. The plan review and enforcement costs are estimated to be $1,106 and $387, respectively. While the cost to clean-up trackout (i.e., the availability of equipment and manpower) is estimated to be $198.40-lb. spill – not including penalties incurred for violating dust control regulations.

The cost of a gravel bed trackout control device has been estimated by Clark County Department Of Air Quality Management as $500 to construct and $860 per year to maintain. Maintenance includes the periodic removal, screening, and replacement of the gravel to remove accumulated soil. The cleaning frequency depends on the ability of construction site water truck operators to keep disturbed soils moist enough to prevent visible dust plumes but dry enough to prevent mud from adhering to the wheels of on-highway vehicles leaving the site.

The newest trackout control device in use in serious PM10 nonattainment areas is a pipe grid system that shakes the accumulated dirt and mud from trucks leaving construction sites, according to a study conducted by San Joaquin Valley Unified Air Pollution Control District. The device consists of 2-inch diameter steel pipe welded in a ladder grid of 8-foot lengths. Three sections of grid are linked together in each of two lanes and appropriately spaced over a 2-inch thick bed of 1-inch aggregate with dimensions of 100-feet by 18-feet at the exit of an unpaved area. The cost of purchasing, shipping, and installing the control device is approximately $5,100. The pipe grid has a useful life of 8 years, which means that the annualized purchase and installation cost of the system is $958 per year. Periodically, the device needs to be removed and the aggregate screened and re-laid to remove accumulated dirt. The total of this maintenance cost and the annualized purchase and installation cost is $1,820 per year.

Rule 310, Section 308.7: The requirement for water sources to be operated on-site at sites that are one acre or larger has been retained, as reflected in amendments adopted by the Board Of Supervisors during the Public Hearing on April 7, 2004.

A qualification has been added to this requirement - water sources must be kept on-site at sites one acre or larger, unless a visible crust is maintained or the soil is sufficiently damp. If a source has the soil in a moist enough state to prevent dust from becoming dislodged, no changes would have to be made to its water source placement. Regardless, whether water sources are operated on-site, or a visible crust is maintained, or the soil is sufficiently damp, compliance with the 20% opacity standard is required.

Per the "Analysis Of Moisture Effects On Emissions From Construction Activities" prepared by Midwest Research Institute in July 2000, as the soil surface layer dries, re-watering will be necessary, focusing on areas with the maximum disturbance of the soil. For example, a haul road where scrapers are transporting soil from one location to another is usually the most important area to control to the highest degree because of construction equipment traveling several times a minute over the same haul road.

Per the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10, establishing criteria for dust control is complicated by variations in soils, meteorological conditions, equipment size/use, project phase, and level of activity. All these factors can impact the amount of water needed to control fugitive dust on a particular site on a particular day, making it difficult to establish criteria that apply to all sites at all times. The need for specific criteria lessens, if a firm standard(s) is established to gauge source compliance. If Maricopa County incorporates additional standards/test methods into Rule 310 that increase the certainty of adequate control, this may lessen the necessity for detailed requirements on dust suppressant application and/or equipment. Even so, the EPA anticipates that some new requirements will be necessary to ensure adequate control, particularly for sites where soils tend to have low water permeability and during the driest seasons. In meeting this enforceable commitment, Maricopa County should evaluate adding, to Rule 310, a ratio of water truck equipment to earthmoving equipment and/or project size.

According to the Clark County Department Of Air Quality Management PM10 State Implementation Plan (SIP) dated June 2001, grading is the most dust-intensive phase of a construction project. Because of the unavailability of cost factors, cost analysis is based on cost effectiveness per acre or control of dust from grading operations. In "An Evaluation Of Incorporating Best Management Practices Into The Construction Activities Program" prepared for the Clark County Health District Board Of Health, Dames & Moore found that the cost of controlling dust during grading on a 40-acre parcel with soils categorized as "low" particulate emission potential would typically be $1,700 per day or $43 per acre per day. This cost is predicated on the application of 200,000 gallons of water. The water application rate and cost

would double for a parcel with soils classified as "high" particulate emission potential. Therefore, the cost per acre per day for controlling dust from grading operations ranges from $43 per acre per day to $86 per acre per day.

In a study conducted by San Joaquin Valley Unified Air Pollution Control District, the cost of watering an unpaved parking lot one acre in size or larger once per day, immediately prior to the commencement of parking activity, is estimated to be $68 per day.

Rule 310, Sections 502.1 and 502.2: Recordkeeping requirements have been clarified by adding more detail about what types of records must be kept. Regulated sources are already required to document all control measures implemented; the additional language does not add any new requirements, but rather simply clarifies the existing standard by giving examples. Therefore regulated sources will have no increased costs as a result of these proposed revisions.

Economic Impacts On County Resources:

The Air Quality Division of the Maricopa County Environmental Services Department has compliance and enforcement programs to handle fugitive dust emissions and has instituted an air quality enforcement policy. The purpose of the policy is to provide a consistent process for documenting air quality violations, notifying alleged violators, and initiating enforcement actions, to ensure that violations are addressed in a timely and appropriate manner. Over the years, Maricopa County has hired additional enforcement personnel and legal staff at the County Attorney's office to enforce the fugitive dust program. Maricopa County has begun to enforce Rule 310 more aggressively by taking more enforcement actions with monetary penalties, in order to make clear to the regulated community that compliance with Rule 310 should be a priority.

Health Costs:

Because Maricopa County is a serious nonattainment area for PM10, which these revisions address, it is imperative to consider the medical and social costs of failing to take steps toward the improvement of the air quality. Adverse health effects from air pollution result in a number of economic and social consequences, including:

1. Medical Costs – these include personal out-of-pocket expenses of the affected individual (or family), plus costs paid by insurance or Medicare, for example.
2. Work loss – this includes lost personal income, plus lost productivity whether the individual is compensated for the time or not. For example, some individuals may perceive no income loss because they receive sick pay, but sick pay is a cost of business and reflects lost productivity.
3. Increased costs for chores and care giving – these include special care giving and services that are not reflected in medical costs. These costs may occur because some health effects reduce the

affected individual's ability to undertake some or all normal chores, and she or he may require extra care.

4. Other social and economic costs – these include restrictions on or reduced enjoyment of leisure activities, increased discomfort or inconvenience, increased pain and suffering, anxiety about the future, and concern and inconvenience to family members.

Rule Impact Reduction On Small Businesses:

A.R.S. § 41-1055 requires Maricopa County to reduce the impact on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives of the rulemaking. A small business is defined in A.R.S. § 41-1001 as a "concern, including its affiliates, which is independently owned and operated, which is not dominant in its field and which employs fewer than one hundred full-time employees or which had gross annual receipts of less than four million dollars in its last fiscal year. For purposes of a specific rule, an agency may define small business to include more persons if it finds that such a definition is necessary to adapt the rule to the needs and problems of small businesses and organizations."

Each commitment made in the Serious Area PM10 Plan included an explanation of costs and funding. Since this rulemaking process is being conducted to fulfill commitments made in the Serious Area PM10 Plan, the economic ramifications should not exceed the economic ramifications described in the costs and funding information included in the Serious Area PM10 Plan. For example, in the “Final Report-Particulate Control Measure Feasibility Study”, Volume I and II, prepared for Maricopa Association Of Governments by Sierra Research, Inc., based on emission inventory data collected by Engineering Science, the costs of implementation for a typical 300-acre residential construction project would be $2,700 per project. The cost of preparing a dust control plan for such project is estimated to be $5,000. The dust control plan review and enforcement costs are estimated to be $1,106 and $387, respectively.

In addition, in its economic analysis of the final Phase II Storm Water Rule (i.e., construction activities-including other land-disturbing activities that disturb 1 acre or more are regulated under Phase II of the National Pollutant Discharge Elimination System (NPDES) storm water program and must implement best management practices (BMPs) to control storm water discharges), the EPA stated that the overall cost increases due to requiring operators of construction sites that disturb 1 acre to 5 acres to develop and implement storm water pollution prevention plans and to obtain permit coverage will be minor and that the potential benefits of these modifications outweigh the incremental costs. The EPA estimated that the total cost of these modifications for all permittees across the United States would be less than $5 million per year. Also, the EPA estimated that the average incremental cost per permit per year for the final Phase II Storm Water

Rule is $276. Because monitoring frequency is typically less frequent for small entities than large entities, the EPA expects the average incremental cost per permit per year to be even less than $276 for small businesses. Also, the EPA used a "sales test" to evaluate the potential severity of economic impact of compliance costs on small businesses. The analysis estimated compliance costs for three sizes of construction sites and then the EPA compared those costs with a representative sale price for three building categories. The site size categories were one, three, and five acres and they represented the amount of disturbed land on a work site. The three building categories were single-family home, multi-family residences, and commercial. The EPA assumed that all compliance costs were incurred by the building contractor. It was unlikely that the compliance costs – even if they exceeded 1% or 3% of sales for many construction businesses – would have a significant effect on these businesses, because costs will be passed on to the eventual purchaser of the property. Regardless of whether the compliance costs constitute a 1% or greater share of small building contractor sales, the EPA states that the impact of the final Phase II Storm Water Rule on contractors that build single-family detached residences will be minimal, because they are able to pass regulatory costs onto buyers.

Conclusion:

Maricopa County worked-with small businesses throughout the rulemaking process for Rule 310, Appendix C, and Appendix F. As a result of this collaboration, Maricopa County was able to design rule revisions that meet the needs of the regulated community while meeting Maricopa County's commitments in the Serious Area PM10 Plan. For example, the definition of "areas accessible to the public" has been revised to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots, the threshold for sites on which a trackout control device is required has been revised to 2 acres or larger, and the threshold of 1 acre or larger for sites on which water sources must be present has been retained.

Because the changes to Rule 310, Appendix C, and Appendix F will essentially clarify requirements that already exist, there is only a minimal economic impact on regulated entities, Maricopa County resources, small business, and the public at large. Maricopa County anticipates that these costs may be offset by reduced costs in other areas or that the new requirements simply incorporate practices that are already put in place. It is also important to note that regulated sources may be encouraged by these revisions to use dust suppressants other than water in order to assure compliance with rule standards, and by doing so may save money in the long run.

10. Description of the changes between the proposed rules, including supplemental notices, and final rules:

The following changes were made in Rule 310, Appendix C, and Appendix F since the text of the proposed rules was published in the Notice Of Proposed Rulemaking on October 31, 2003. Some of these changes have been made in response to formal comments (see #11 below) and some of these changes have been made in response to Maricopa County's collaboration with small businesses, which are reflected in amendments adopted by the Board Of Supervisors during a Public Hearing on April 7, 2004. Where a change is shown and/or described that is the result of the Board Of Supervisors' amendments, it is noted.

These changes appear in the text of the final rules to be published in this Notice Of Final Rulemaking:

Section 201: As reflected in amendments adopted by the Board Of Supervisors, the originally proposed definition of "area accessible to the public" was deleted and "area accessible to the public" was re-defined to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots.

Section 226: Deleted “roadway”.

Section 302.1: Returned the original text “shall not allow”.

Section 302.2(a): Returned the original text “shall not allow”.

Section 302.2(b): Changed second sentence to read: “If complying with this subsection, the owner and/or operator must include, in a Dust Control Plan, the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employees, earthmoving equipment, haul trucks, and water trucks)”. This change is consistent with the change made to Section 304.3(c).

Section 302.3: Added text from Appendix C, Section 2.2 as second sentence: “Should a disturbed open area and/or vacant lot or any disturbed surface area on which no activity is occurring contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Appendix C of these rules, and include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results”.

Section 304.3(c): Changed section to read: "If complying with Section 302.2(b) of this rule, the Dust Control Plan must include the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks)". This change is consistent with the change made to Section 302.2(b).

Section 304.6: Deleted requirement to disclose shrink/swell potential in a Dust Control Plan, as reflected in amendments adopted by the Board Of Supervisors.

Section 307: Added "except for routine maintenance and repair under a block permit" to the first sentence. The first sentence reads: "For all sites with an earthmoving permit that are five acres or larger, except for routine maintenance and repair done under a block permit, the owner and/or operator shall erect and maintain a project information sign at the main entrance, this is readable by the public".

Section 308.3(a)(1): Changed threshold from one acre or larger to two acres or larger regarding installing a trackout control device on all work sites with a disturbed surface area, as reflected in amendments adopted by the Board Of Supervisors.

Section 308.3(b)(1): Deleted "or within 30 minutes".

Section 308.6(a): Deleted "during" and added "prior to and/or while conducting". Deleted "apply water, as necessary, to maintain compliance with Section 301 of this rule; and". Added "comply with one of the following work practices". Section 308.6(a) reads: "Prior to and/or while conducting stacking, loading, and unloading operations, comply with one of the following work practices:"

Section 308.6(a)(1): Added Section 308.6(a)(1) – "Spray material with water, as necessary; or". This control measure matches the control measure listed in Table 11.

Section 308.6(a)(2): Added Section 308.6(a)(2) – "Spray material with a dust suppressant other than water, as necessary". This control measure matches the control measure in Table 11.

Section 308.6(b): Deleted Section 308.6(b). Section 308.6(b) is already listed in Table 11, as a suggested additional control measure for contingency plans.

Section 308.6(c): Re-numbered Section 308.6(c) to original Section 308.6(b).

Section 308.7: Deleted threshold of ½ acre or larger and returned the original threshold of 1 acre or larger regarding operating a water application system on-site while conducting any earthmoving operation on disturbed surface areas, as reflected in amendments adopted by the Board Of Supervisors.

Table 11: In heading, changed "during" to "for". In Item (a)(1), added "as necessary", changed "and" to "and/or", and deleted "or". In Item (a)(2), added "as necessary" and changed "and" to "and/or". In Item (b), added (2) and (3) from Table 12. Item (b)(2) reads: "Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate" and Item (b)(3) reads: "Remove material from the downwind side of the storage pile when safe to do so".

Table 12: In title, added "When Not Conducting Stacking, Loading, And Unloading Operations". In Item (a)(2), changed "method as" to "methods" and changed "method" to "methods". In Item (b), deleted (1) and (2). Items (b)(1) and (b)(2) were added to Table 11.

Table 13: Deleted Item (a)(4), "spray material with water prior to loading and spray material with water while loading", because it is already listed in Table 11.

Table 17: In Item (a)(1), deleted "or within 30 minutes". In Item (b)(2), deleted "and".

Appendix C, Section 3.3.2(d): Added "discrete" to second sentence.

Appendix C, Section 3.3.2(e): Added "(e.g., vehicle traveled in front of path, plume doubled-over)" to end of last sentence.

Appendix C, Section 3.3.2(f): Deleted "unless any one reading is greater than 50% opacity".

Appendix C, Section 3.3.3(b)(2): Added "Readings can be taken for more than one piece of equipment within the discrete length of travel path within the 140° sector to the back" to the end of the last sentence.

Appendix C, Section 3.3.3(g): Deleted "unless any one reading is greater than 50% opacity".

Appendix F, Section 2: Deleted Soil Shrink/Swell Potential map, as reflected in amendments adopted by the Board Of Supervisors.

11. Summary of the comments made regarding the rules and the department's response to them:

Maricopa County Environmental Services Department, Air Quality Division has received written comments from 7 stakeholders regarding the revisions to Rule 310, Appendix C, and new Appendix F.

Comment #1:

Maricopa County's economic analysis is incomplete and lacks the discussion of the costs associated with trackout, carry-out, spillage, and/or erosion. The economic impact statement fails to address the economic effect of the new 50% opacity standard as observed in a single opacity reading, the requirement for the designation of texture of soil and shrink/swell potential in dust control plans, and the costs associated with activities on sites 1 acre or larger. Many smaller sites may find it to be substantially more expensive to install trackout control devices than the current measures they use to control dust. Maricopa County has extended the scope of the changes far beyond the commitments made to the EPA. The impact and implementation of the current rule should be assessed before re-writing the rule this extensively.

Response #1:

In this Notice Of Final Rulemaking, Maricopa County has better described the economic effects of the proposed rule revisions. Maricopa County agrees that addition analysis is necessary for the 50% opacity standard and has removed the proposal from this rulemaking. Also, per amendments adopted by the Board Of Supervisors, the requirement to include shrink/swell potential statements in dust control plans has been removed and the requirement to install trackout control devices at sites one acre or larger has been changed to two acres or larger.

Comment #2:

Before implementing the new 50% opacity standard, a complete evaluation and emission modeling effort must be performed to ensure the perceived reductions will attain the ambient air quality goal within the targeted area. The 50% opacity requirement provides an incentive to use 50% readings instead of timed readings. This practice will be subjective, since there is no method described in Rule 310 for the 50% opacity standard. Maricopa County should allow stakeholders additional time to review the efficacy and practicality of the 50% opacity single observation visual test method. The proposed test method requiring an observation of non-continuous dust plumes immediately following commencement of bulk loading/unloading, non-conveyorized screening, or trenching and one additional reading 5 seconds later is a significant change in the opacity standard. Such a dramatic departure from the current requirements should not be promulgated without any legal, technical, and economic analysis. Maricopa County has not demonstrated that such a stringent measure is practicably available in Maricopa County's particularly unique arid environment. The existing standard of 20% opacity averaged over (12) 15-second intervals is

reasonable and achievable. The multiple readings diminish the inherent subjectivity of opacity readings performed by human observation. Maricopa County should remove the 50% opacity standard from Rule 310.

Response #2:

Following the revisions to Rule 310 in 1999 and in 2000, the EPA expressed concern that the existing opacity standard and test method for earthmoving operations may not always be sufficient to control construction site dust to BACM levels. As a result, Maricopa County committed to revise Rule 310 and/or Appendix C to modify the existing opacity standard/test method or add an additional opacity standard(s)/test method(s) tailored to non-process fugitive dust sources that create intermittent plumes. The proposed test method requiring an observation of non-continuous dust plumes immediately following commencement of bulk loading/unloading, non-conveyorized screening, or trenching and one additional reading 5 seconds later better addresses the nature of the activities that last for less than 3 minutes. Although Maricopa County has conducted research to develop test methods that more accurately determine opacity compliance, an instantaneous reading was not part of that research. The current test method still requires an average of 12 readings to determine compliance and minimize subjectivity. While Clark County in Las Vegas, Nevada, adopted a 50% opacity standard as observed in a single opacity reading in 2003, Maricopa County agrees that all of the ramifications of the new opacity standard have not yet been examined. Consequently, Maricopa County has removed the 50% opacity standard from Rule 310. In future Rule 310 rulemakings, though, Maricopa County will reconsider the 50% opacity standard as a "most stringent measure" for meeting the PM10 plan.

Comment #3:

The combination of the removal of the requirement for opacity observations at 1 meter above the equipment creating the plume and the addition of an "initial fallout zone" that is not clearly defined will affect measurement consistency. Without the 1 meter requirement, results can vary significantly depending on where the observer takes the opacity reading, because any plume created tends to dissipate farther from the source. Maricopa County should reinsert the 1 meter height limit and should remove references to the "initial fallout zone".

Response #3:

Comments received during Rule 310 public workshops identified feasibility issues with several provisions of the proposed revisions to Rule 310 and Appendix C. In addition, during their review of Rule 310, the EPA identified changes that they believed impacted approvability of proposed provisions as BACM. Maricopa County revised Appendix C, Section 3 (Time Averaged Methods Of Visual Opacity Determination Of Emissions From Dust Generating Operations) not only to address its State Implementation Plan commitment "to modify Rule 310's existing opacity/test method or add an additional opacity standard(s)/test method(s), so that such standard(s) and/or test

method(s) better characterize fugitive dust source that create intermittent plumes", but also to address the EPA's concerns regarding intermittent sources and continuous sources.

Maricopa County reviewed field observations and concluded that not all heavy dust particles "fallout" at 1 meter but rather "fallout" occurs between 5 feet and 25 feet above the equipment creating the plume. For example, depending on the speed of a paddlewheel, a dense plume of materials with an opacity up to 100% is present at 1 meter above the equipment, as large materials are still falling out of the plume. Therefore, Maricopa County revised Rule 310 to include an "initial fallout zone" and defined "initial fallout zone" as that area where the heaviest particles drop out of the entrained fugitive dust plume. The fallout zone concept is similar to the steam plume concept in Method 9 and the visible emissions method used for abrasive blasting.

Comment #4:

The definition of "area accessible to the public" is too broad and could lead to enforcement problems on controlled sites. It may be more acceptable if Maricopa County would accept signage that designates an area as "No Public Access Allowed".

Response #4:

Per amendments adopted by the Board Of Supervisors, the originally proposed definition of "area accessible to the public" was deleted and "area accessible to the public" was revised to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots.

Comment #5:

The commitment to research and develop a standard and test method(s) for earthmoving operations that would sufficiently control construction site dust to best available control measure (BACM) levels did not include a requirement that Maricopa County impose more stringent requirements on non-earthmoving operations. Therefore, Maricopa County should exclude fugitive dust generated from non-continuous emptying or "tipping" of filled waste containers (non-earthmoving operations) from the scope of this rulemaking.

Response #5:

The non-continuous emptying or "tipping" of filled waste containers may include dirt that is scooped-up with landfill waste. Dust generating operations include scraping/scooping up dirt and loading and unloading that dirt regardless of whether or not that dirt is mixed with landfill waste. Emptying or "tipping" of filled waste containers that include dirt is also considered to be an "intermittent activity" (for which the EPA expressed concern) and is subject to Rule 310. A review of Maricopa County inspections did not find instances when dumping into a landfill created

excessive emissions. However, the file review did reveal that trackout, covering/closing an active landfill face, and weed abatement can create emissions issues at a landfill.

Comment #6:

Maricopa County should more clearly define what sites need dust control permits and dust control plans. The "owner/operator" language needs to incorporate "any individual" involved in a dust generating activity, because it is unclear whether or not a party other than the "owner/operator" is regulated. Dust control measures are best managed and enforced by the individual contractors who work at a site not the site owner or operator who may not be present on a daily basis. Best available control measures (BACM) could require owners and operators to implement effective management measures that ensure contractors have the tools and training necessary to comply with dust control requirements.

Response #6:

When determining responsibility for compliance, Maricopa County looks to the party that has operational control over construction or operational plans and specifications, and/or the person who has the authority to control dust at a site. Most individual employees do not have the authority to implement dust control on their own. Maricopa County's enforcement policy allows Maricopa County to cite subcontractors, as well as general contractors, for violation(s) of Rule 310. The decision regarding whom to cite for a violation is made on a case-by-case basis considering the facts of the specific violation. Field inspectors have the authority to write violations that are subject to civil penalties for each day of violation.

Maricopa County agrees that owners and/or operators should implement effective management measures to ensure that contractors have the tools and training necessary to comply with dust control requirements. General contractors cannot rely on subcontractors to comply with all dust control requirements. General contractors must implement standard procedures with their subcontractors (i.e., prepare dust control procedures manuals and train project managers and superintendents). To help general contractors understand and develop such standard procedures, Maricopa County has:

- Collaborated with the Arizona Department Of Transportation and Maricopa County Department Of Transportation to develop a manual for government construction oversight.
- Conducted public outreach/education workshops to explain dust control measures and recordkeeping requirements.
- Met with and trained city staff to prepare inspection reports.

Comment #7:

By using the word "ensure" instead of "shall not allow", Maricopa County is putting unreasonable controls on the owner/operator. "Ensure" is unattainable, impractical, and outside the scope of Maricopa County's commitment to the EPA. Industry makes every effort to implement BACM throughout the active/inactive boundaries of the dust generating activity. However, as an industry, no matter what measures are taken, industry cannot guarantee that properties inaccessible, as well as accessible to the public, will not be circumvented by trespassers.

Response #7:

Maricopa County deleted "ensure" from Rule 310 and returned "shall not allow" to Rule 310.

Comment #8:

What influence does stabilization have on the requirement to ensure visible fugitive dust emissions do not exceed 20% opacity and to ensure silt loading is less than 0.33 oz/ft^2 or to ensure silt content does not exceed 6% on any unpaved haul/access road? A surface could be stabilized but breach this requirement, after testing the material.

Response #8:

Test methods are needed for owners, operators, Maricopa County, or other interested parties to make objective and consistent determinations about a source. A minimum standard and a corresponding test method are used to indicate whether a source poses a dust problem that needs to be controlled. A test method can also be used to determine whether a specific control applied to the source has successfully stabilized the surface as intended. Silt loading and silt content are two criteria for indicating when stabilization is adequate. Both criteria have been incorporated into Rule 310 from the Federal Implementation Plan (FIP), as required by the EPA.

Test methods can be used as evidence for Maricopa County when issuing an emissions violation to a source and as evidence for a source that the source is not violating an emissions standard when complaints are made.

The Federal Implementation Plan (FIP) requires owners/operators of unpaved roads and unpaved parking lots to comply with 2 standards – a 20% opacity standard and a silt content standard. Silt content is not to exceed 6% for unpaved roads and 8% for unpaved parking lots. According to the FIP, if a source passes the opacity standard but fails the silt content standard, or vice versa, it is not in compliance with the FIP. It may not be necessary to conduct the silt content test method, if the surface is kept damp enough to bind dirt particles such that a sample collected from the source would "stick". The silt content test method should not be done immediately following surface wetting, as this may not represent the most common condition of the source as it receives vehicle traffic.

Comment #9:

Maricopa County's commitments do not mandate requiring certain dust control plans to include the number of vehicles traveling on unpaved roads "each day". Providing the number of vehicles traveling on unpaved roads each day that a site is active would be an undue paperwork burden. Maricopa County should clarify Rule 310 to require individuals who use this provision to specify the maximum daily number of vehicles that would be used on-site during activities.

Response #9:

During the rulemaking process to adopt the February 16, 2000 version of Rule 310, the EPA explained in a letter dated November 29, 1999 that corrections to Rule 310 were necessary in order for the EPA to approve the rule in the State Implementation Plan. One of those corrections was that if an owner and/or operator of haul/access roads chose the control measure of limiting vehicle trips to 20 per day, then such owner and/or operator "must include in their dust control plan a complete list of all vehicles anticipated to be on-site at any time during the project (e.g., number of employee vehicles, earthmoving equipment, haul trucks, water trucks)". After discussions with the EPA and stakeholders, Maricopa County agreed to add the EPA's requested requirement without the requirement for a "complete list of all vehicles". In Rule 310, as adopted February 16, 2000, Maricopa County modified the EPA's requested requirement and added it to Section 304 (Elements Of A Dust Control Plan): "If complying with subsection 302.2(b) (Stabilization Requirements For Fugitive Dust Sources-Unpaved Haul/Access Roads) of this rule, must include the number of vehicles traveled on the unpaved haul/access roads (i.e., number of employee vehicles, earthmoving equipment, haul trucks, and water trucks)". For this rulemaking process, Maricopa County concurs that Rule 310 should specify the <u>maximum</u> daily number of vehicle trips on unpaved haul/access roads and has revised Rule 310 accordingly.

Comment #10:

Maricopa County should delete the language referencing "at least", beginning in Section 302.3 (Open Area And Vacant Lot Or Disturbed Surface Area) and continuing throughout Rule 310.

Response #10:

To Rule 310, Section 302.3, Maricopa County added the following sentence, from Appendix C, Section 2.2, to clarify "at least": "Should a disturbed open area and/or vacant lot or any disturbed surface area on which no activity is occurring contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Appendix C of these rules, and include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results".

Comment #11:

Although Rule 310 applies to disturbed surface areas that exceed 0.1 acre, the term "disturbed surface area" is open to inconsistent interpretation and Maricopa County has not provided a technical, legal, or economic justification for expansively interpreting the definition of "disturbed surface area" to include work site preparation areas. "Disturbed surface areas" should be limited to the surface area that is actually trenched, excavated, or cleared for future development. Likewise, Maricopa County should exclude from Rule 310 worksite preparation areas and provide owners, operators, and subcontractors with sufficient notice that their activities require permits and plans.

Response #11:

The definition of "disturbed surface area" has been in Rule 310 since 1993. "Disturbed surface area" is defined as a portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust. "Disturbed surface area" was intended to distinguish soil conditions not dust generating activities.

Rule 310 applies to dust generating activities of any size. Although only those activities that disturb surface areas of 0.10 acre are required to obtain a permit, a work site preparation area creates disturbed surface areas and must comply with Rule 310. Maricopa County has always maintained that work preparation areas must be included in the permit work site. As a result almost all applicants include these areas. To further address this issue, Maricopa County is revising the application instructions and guidance and will revise Rule 200 (Permit Requirements) in the near future.

Comment #12:

Maricopa County's conclusion that it "feels" that the provision requiring construction sites one acre or larger to include a statement disclosing soil types will have no economic impact is premature. Requiring onsite water systems, such as water trucks, on virtually all sites larger than ½ acre is a major expansion of the current rule and will directly impact small businesses. Until Maricopa County develops and makes available guidance outlining the types of control measures necessary, Maricopa County cannot know the economic impact of Rule 310. Also, one acre is much too small an area on which to require the inclusion of soil texture and shrink/swell potential in the dust control plan for construction projects. Maricopa County should change the size requirement to no less than 10 acres, as in the previous draft dated September 5, 2003. However, if Maricopa County retains this requirement, then Maricopa County should provide more suitable maps. The maps in Appendix F are so small that it is impractical to identify a specific acre.

Response #12:

Per amendments adopted by the Board Of Supervisors, the requirement to include shrink/swell potential statements in dust control plans has been removed; the requirement to include soil texture descriptions in dust control plans for sites one acre or larger remains. Also, per amendments adopted by the Board Of Supervisors, the requirement for water sources to be operated on-site at sites that are one acre or larger has been retained. Water sources were originally proposed to be on-site at projects ½ acre or larger.

One of the primary reasons for revising Rule 310 is to strengthen Rule 310 in accordance with the enforceable commitments made by Maricopa County as part of the approved PM10 State Implementation Plan. Maricopa County committed "to develop parameters that address various site conditions and are sufficient to ensure that Rule 310's performance standards are met more consistently". Rule 310 addresses this commitment by requiring owners and/or operators in areas where soil types are more conducive to the generation of dust to use more stringent fugitive dust control measures. While the EPA supported this concept, the EPA was concerned that the phrase "projects 10 acres or larger" was somewhat ambiguous and subject to differing interpretations that could complicate compliance/enforcement. The EPA contended that disclosing designated texture(s) of soil and their shrink/swell potential naturally present at or to be imported to a dust generating operation should be extended to smaller projects than 10 acres. The requirement to read soil types from a map (soil testing is not required) poses no additional burden to a source or project that is already required to develop a dust control plan. It is unclear why an owner and/or operator would not want to have soil type information for any project that is required to have a dust control plan.

Rule 310 is not the only regulation requiring construction sites to describe soil type(s) in a dust control plan. Construction activities (including other land-disturbing activities) that disturb one acre or more are regulated under Phase II of the National Pollutant Discharge Elimination System (NPDES) storm water program, a regulatory action which requires small municipalities and construction sites to implement best management practices to control storm water discharges. On March 10, 2003, new regulations came into effect that extended coverage to construction sites that disturb one acre to five acres in size, including smaller sites that are part of a larger common plan of development or sale. Sites disturbing five acres or more were regulated previously. Operators of regulated construction sites are required to develop and implement stormwater pollution prevention plans and to obtain permit coverage from an authorized state or from the EPA, if the state is not authorized by the EPA to issue NPDES permits. Arizona conforms to the federal NPDES. Since December 2002, the Arizona Department Of Environmental Quality (ADEQ) has administered the Arizona NPDES program as an approved NPDES program for discharges to

surface waters within Arizona. In response to Phase II of the NPDES program revisions, Arizona changed its Arizona NPDES program to regulate construction sites one acre or larger.

The Phase II NPDES rule regulates construction starts disturbing one to five acres of land. Specifically, small construction site owners or operators are required to plan and implement appropriate erosion and sediment control best management practices (BMPs). In estimating incremental costs attributable to the final rule, the EPA estimated that installing trackout control devices would cost $15.72 per square yard and developing control plans would cost $361.87 - $1,182.63. Also, the EPA estimated total average compliance costs for a Phase II construction site to be $2,143 for sites disturbing between one and two acres of land, $5,535 for sites disturbing between two and four acres of land, and $9,646 for sites disturbing between four and five acres of land.

Comment #13:

Maricopa County should assign the same block number, when Maricopa County renews block permits. Changing the block permit number, when the block permit is renewed, would require the project information sign to be changed when projects extend beyond the term of the original permit. Issuing the same block permit number at the time of renewal would eliminate this potential violation.

Response #13:

Over the next year, Maricopa County will examine what database changes are required in order to issue the same block permit number at the time of renewal.

Comment #14:

At the end of the first paragraph of Section 308 (Work Practices), Maricopa County should insert the following: “For the purpose of this section, a paved area accessible to the public does not include a paved area that has been designated as a trackout control device in an approved dust control plan”. Under this suggested revision, the exception for paved areas that have been designated as a trackout control device would allow Maricopa County the discretion, at the time of approving a dust control plan, to distinguish between suitable paved area trackout devices that are accessible to the public and those that are not suitable (i.e., shopping mall parking lots).

Response #14:

Per amendments adopted by the Board Of Supervisors, the originally proposed definition of "area accessible to the public" was deleted and "area accessible to the public" was revised to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots.

Comment #15:

The work practices required when crossing a paved area accessible to the public will prevent legitimate uses of paved areas as trackout control devices merely because they are accessible to the public, regardless of the type or frequency of this public use. It is simply not reasonable to allow a threshold for exiting and provide no threshold for simply crossing a street. Maricopa County should repeat the requirements/language regarding installing, maintaining, and using a suitable trackout control device at all exits onto paved areas accessible to the public in the requirements/language regarding crossing a paved area accessible to the public. Or Maricopa County should merge the requirements and require cleanup for crossing roadways, if the trackout extends more than 50 feet.

Response #15:

To meet best available control measures (BACM), Maricopa County must proactively prevent trackout and not respond retroactively to trackout. Exiting onto paved areas accessible to the public is different from crossing a paved area accessible to the public. The work practices for exiting onto paved areas accessible to the public regard bulk material hauling (i.e., where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day) and not recreational uses of parks. Per amendments adopted by the Board Of Supervisors, the originally proposed definition of "area accessible to the public" was deleted and "area accessible to the public" was re-defined to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots. With this new definition, Maricopa County should be able to distinguish between suitable paved area trackout devices that are accessible to the public and those that are not suitable.

Comment #16:

Requiring contractors and material suppliers to perform sweeping no later than 30 minutes after trackout has occurred is not reasonable. There are numerous variables that could influence response time. Rule 310 should be tied-to a measurable basis for determining severity. Traffic count or time of day could be used to scale response time.

Response #16:

Maricopa County deleted “or within 30 minutes” from the requirement to clean up trackout, carry-out, spillage, and/or erosion when it extends a cumulative distance of 50 linear feet or more leaving the original text intact. One of the goals of Rule 310 is to prevent or minimize trackout. Rule 310 is tied-to a measurable basis for determining severity and uses the distance trackout extends as that measure. Past State Implementation Plans (SIPs) indicate that 35% - 40% of PM10 comes from re-entrained road dust. Construction trackout is a significant source of road dust.

Comment #17:

Maricopa County should clarify what is meant by "easement", where access by a permitted source is obtained for ingress/egress. There is confusion regarding who the responsible party is for activities occurring on the easement, utility right-of-way, and access roads for utilities.

Response #17:

Rights to ingress/egress arise from a variety of conveyances or agreements that are specific to a site or situation. Some conveyances or agreements for ingress/egress are not interests in real estate but are permits that can be terminated or modified by the party granting them and typically cannot be conveyed or assigned to someone else.

For activities occurring on the easement, utility right-of-way, or access roads for utilities, Maricopa County first looks to establish who has operational control over the activities causing the problems and approaches that individual first. The decision on who to hold responsible will depend upon the specifics of the particular situation. The following examples illustrate some possible outcomes in determining responsibility:

1. The first example is a construction site where utility employees are trenching across the utility's easement at one end of the site without watering. For this example, Maricopa County will hold the utility responsible for dust from trenching.

2. The second example is the same construction site, but this time the contractor's employees are driving across the easement to enter or leave the site and track dirt out into the street. In this example, Maricopa County may hold the contractor responsible for the trackout.

3. The third example is a batch plant that secured a permit to access a public paved road, and whose plant trucks are tracking dirt into the street as they cross the unimproved right-of-way. Maricopa County approaches the batch plant operator initially to gather specifics. While the right-of-way owner may be determined to be responsible, the batch plant operator will probably have to correct this situation depending on the terms in the ingress/egress agreement or permit. Many agreements are designed to hold the right-of way holder harmless for problems created by the batch plant seeking access.

Comment #18:

Why is Maricopa County telling industry how to conduct its business (i.e., during stacking, loading, and unloading operations, empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping)?

Response #18:

Maricopa County removed the requirement – during stacking, loading, and unloading operations, empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping – from the work practice standards and has retained it as a suggested control measure listed in Table 11 (Bulk Material Handling Operations-Work Practices For Stacking, Loading, And Unloading Operations).

Comment #19:

Table 11 (Bulk Material Handling Operations – Work Practices During Stacking, Loading, And Unloading Operations) will require the installation of additional water systems, which will add an estimated $60,000 for installation and $10,000 for maintenance per year, for solid waste transfer stations and landfills within Maricopa County. Maricopa County should closely evaluate its research data and identify those sources of fugitive dust that are the root cause of Maricopa County's concerns and that, when further controlled, will provide a benefit that justifies the costs. Also, Maricopa County made changes to Table 11 without stakeholder input and is prescribing how industry should conduct its business.

Response #19:

Collectively construction site operations emissions (24.5%) and windblown emissions (2.5%) are the second largest contributor of PM10 emissions in the Phoenix area, according to the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10. Material handling and bulk material storage and/or transporting operations are included as sources of fugitive dust at construction sites. The tables in Rule 310 relate to Rule 310, Section 308 (Work Practices) which relate to dust control plans. Maricopa County agrees that Table 11 contains more stringent requirements than Maricopa County intended. As a result, Table 11 has been revised to reinsert the phrase "as necessary" and change the "and" to "and/or". Now, both Table 11 and Rule 310, Section 308.6 (Work Practices-Open Storage Piles) require using water as a dust control method only <u>as necessary</u> to maintain compliance with the 20% opacity limit in Rule 310. Even though industry must comply with Rule 310, industry has the flexibility to create its dust control plan(s) that best suit its business practices.

Comment #20:

Industry should not be required to cover all open storage piles with tarps, plastic, or other material. It is not practical as an everyday requirement. Maricopa County made this change without stakeholder input.

Response #20:

Industry is not required to cover all open storage piles with tarps, plastic, or other material as an everyday requirement. Covering open storage piles with tarps, plastic, or other material is one of four dust control options and applies when <u>not</u> conducting stacking, loading, and unloading

operations. Maricopa County added the phrase "when not conducting stacking, loading, and unloading operations" to Table 12 (Open Storage Piles), Item (a). With this addition, Table 12 matches the work practices for open storage piles, described in Rule 310, Section 308.6(b).

Comment #21:

In Table 13 (Bulk Material Hauling/Transporting – Within The Boundaries Of The Work Site When Crossing A Paved Area Accessible To The Public While Construction Is Underway), Maricopa County changed the language from "one of the following" to "all of the following" without stakeholder input.

Response #21:

In the original Rule 310, Table 1 (Source Type And Control Measures), control measures for bulk material hauling/transporting when on-site hauling/transporting within the boundaries of the work site when crossing a public roadway upon which the public is allowed to travel while construction is underway were listed with "and" at the end of each measure, implying that all of the control measures should be implemented. After discussions at public workshops, Maricopa County created individual tables for each dust generating operation source type listed in Table 1. In doing so, Maricopa County created Table 13 (Bulk Material Hauling/Transporting–Within The Boundaries Of The Work Site When Crossing A Paved Area Accessible To The Public While Construction Is Underway). As written in the Notice Of Proposed Rulemaking for Rule 310, the control measures listed in Table 13 were the same control measures listed in original Table 1. However, Table 13 did not have "and" at the end of each measure but included the introductory phrase "an owner and/or operator must implement all of the following control measures".

Comment #22:

In Table 18 (Weed Abatement By Discing And Blading), Maricopa County changed the language from "one of the following" to "all of the following" without stakeholder input.

Response #22:

In written comments received after the public workshop on September 18, 2003, the EPA stated that Table 18 was not consistent with Section 308.9 (Work Practices-Weed Abatement By Discing Or Blading) and that the last word in Item (a)(1) should be "and" and not "or", to avoid relaxing the State Implementation Plan (SIP). Consequently, in the Notice Of Proposed Rulemaking for Rule 310, Table 18 included the statement "an owner and/or operator must implement all of the following" and included "and" after "apply water while weed abatement by discing or blading is occurring".

Comment #23:

In Table 20 (Wind Event Control Measures – Dust Generating Operations), Maricopa County added the provision – apply water at least twice [once] per hour or apply water to maintain a soil moisture content at a minimum of 12% and construct fences or three-foot to five-foot wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of wind-blown material leaving the site – without stakeholder input.

Response #23:

In the original Rule 310, Table 2 (Source Type And Wind Event Control Measures), four control measures were listed for dust generating operations. Each measure was followed by "or", implying that one of the measures should be implemented. After discussions at public workshops, Maricopa County created individual tables for each source type listed in Table 2. In doing so, Maricopa County created Table 20 (Wind Event Control Measures-Dust Generating Operations). In the Notice Of Proposed Rulemaking for Rule 310, the four control measures listed in Table 20 were the same four control measures listed in original Table 2. However, Table 20 did not have "or" at the end of each measure but included the introductory phrase "an owner and/or operator must implement one of the following control measures".

Comment #24:

Appendix F (Soil Designations) creates a framework to impose measures that may not apply to specific site conditions. The maps are too small that it would be impractical to identify a specific acre on them. If Maricopa County believes it is necessary to require this information, then more suitable maps should be provided.

Response #24:

Soil type statement/descriptions are required to be included in dust control plans for sites one acre or larger. Shrink/swell potential statements were also required to be included in dust control plans for sites one acre or larger, but the requirement has been removed, per amendments adopted by the Board Of Supervisors.

Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Regulated sources should provide, in dust control plans, soil test results, but in the event soil test results are not available, the soil type maps may be used as default information on dust control permit/dust control plan applications. Maricopa County acknowledges the commenter's concerns and will continue to develop more suitable soils maps. Enforcement cases frequently reveal that soils are the culprit when trying to control dust. Knowing soils types before a dust generating activity occurs improves project planning and will allow more effective dust control measures to be implemented and maintained.

Comment #25:

A project sign erected on every jobsite larger than 5 acres stating pertinent information regarding that job is good on a project where the owner has selected a general contractor or builder, but many times the owner is clearing the site for a developer to come-in and start a project. Signs are expensive and timely. Some demolition projects will actually be completed before the sign is finished and ready to be installed. Maricopa County should allow smaller subcontractors to apply for a $50 "temporary" dust permit that will be valid for 30 days or less. This will increase revenues, due to the fact that currently a dust permit is issued for the entire project for a period of 12 months. A long-term dust control permit could then be issued at a later date for the entire project, once the owner/developer is selected with additional fees incorporated.

Response #25:

Most demolition projects are less than 5 acres and would not require a project sign. However, Maricopa County is not opposed to considering a "temporary" dust permit and/or a demolition permit. Maricopa County will have to revise Rule 200 (Permit Requirements) and Rule 280 (Fees), before instituting a "temporary" dust permit and/or a demolition permit. Until then, Maricopa County has been recommending that companies either close the permit at the completion of the project or change the permit into the contractor's name at the completion of demolition. Maricopa County has forms for both options.

12. Any other matters prescribed by the statute that are applicable to the specific department or to any specific rule or class of rules:

None

13. Incorporations by reference and their location in the rules:

None

14. Was this rule previously an emergency rule?

No

15. The full text of the rules follows:

Rule 310, Appendix C, and Appendix F

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 310

FUGITIVE DUST ~~SOURCES~~

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TABLE 1

Revised 07/13/88
Revised 07/06/93
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Revised 02/16/00

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 310
FUGITIVE DUST ~~SOURCES~~

SECTION 100 - GENERAL

101 PURPOSE: No change

102 APPLICABILITY: The provisions of this rule shall apply to all dust generating operations except for those dust generating operations listed in Section 103. ~~:~~ ~~normal farm cultural~~

~~practices under Arizona Revised Statutes (A.R.S.) §49-457 and ARS §49-504.4 and open areas, vacant lots, unpaved parking lots, and unpaved roadways which are not located at sources that require any permit under these rules.~~

103 **EXEMPTIONS:** The following are exempt from the requirements of this rule: normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4, and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under these rules.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

201 **AREA ACCESSIBLE TO THE PUBLIC** – Any retail parking lot or public roadway that is open to public travel primarily for purposes unrelated to the dust generating operation.

~~201~~ **202** **BULK MATERIAL -** Any material, including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than 2 inches in length or diameter (i.e., aggregate base course (ABC)), earth, soil, dirt, mud, demolition debris, cotton, trash, cinders, pumice, rock, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete~~, which~~ that are capable of producing fugitive dust ~~at an industrial, institutional, commercial, governmental, construction, and/or demolition site~~.

~~202~~ **203** **BULK MATERIAL HANDLING, STORAGE, AND/OR TRANSPORTING OPERATION -** The use of equipment, haul trucks, and/or motor vehicles, ~~such as~~ including, but not limited to, the loading, unloading, conveying, transporting, piling, stacking, screening, grading, or moving of bulk materials~~, which~~ that are capable of producing fugitive dust ~~at an industrial, institutional, commercial, governmental, construction, and/or demolition site~~.

~~204 CARRYOUT/TRACKOUT – Any and all bulk materials that adhere to and agglomerate on the exterior surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen onto a paved public roadway.~~

204 **CONTROL MEASURE -** A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust. Control measures include, but are not limited to:

204.1 Curbing~~.~~;

204.2 Paving~~.~~;

204.3 Pre-wetting~~.~~;

204.4 Applying dust suppressants~~.~~;

204.5 Physically stabilizing with vegetation, gravel, recrushed/recycled asphalt or other forms of physical stabilization~~.~~;

204.6 Limiting, restricting, phasing and/or rerouting motor vehicle access~~.~~;

204.7 Reducing vehicle speeds and/or number of vehicle trips~~.~~;

204.8 Limiting use of off-road vehicles on open areas and vacant lots~~.~~;

204.9 Utilizing work practices and/or structural provisions to prevent wind and water erosion onto paved ~~public roadways~~ areas accessible to the public;

204.10 Appropriately using dust control implements~~.~~;

204.11 Installing one or more grizzlies, gravel pads, and/or wash down pads adjacent to the entrance of a paved ~~public roadways.~~ area accessible to the public to control carry-out and trackout~~.~~;

204.12 Keeping open-bodied haul trucks in good repair, so that spillage may not occur from beds, sidewalls, and tailgates~~.~~;

204.13 Covering the cargo beds of haul trucks to minimize wind-blown dust emissions and spillage.

205 **DISTURBED SURFACE AREA –** No change

206 **DUST CONTROL IMPLEMENT –** No change

207 **DUST CONTROL PLAN -** A written plan describing all fugitive dust control measures.

208 **DUST GENERATING OPERATION -** Any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance ~~and/or~~ and playing on or maintaining a ~~ballfield~~ field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, ~~nor~~ or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

209 **DUST SUPPRESSANT –** No change

210 **EARTHMOVING OPERATION –** No change

211 **FREEBOARD –** No change

212 **FUGITIVE DUST -** The particulate matter~~, which is~~ not collected by a capture system, ~~which~~ that is entrained in the ambient air, and ~~which~~ is caused from human and/or natural activities, such as, but not limited to, movement of soil, vehicles, equipment, blasting, and wind. For the purpose of this rule, fugitive dust does not include particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines, from portable brazing, soldering, or welding equipment, and from piledrivers, and does not include emissions from process and combustion sources that are subject to other rules in Regulation III (Control Of Air Contaminants) of these rules.

213 **GRAVEL PAD –** A layer of washed gravel, rock, or crushed rock ~~which~~ that is at least one inch or larger in diameter, that is maintained at the point of intersection of a paved ~~public roadway~~ area accessible to the public and a work site entrance to dislodge mud, dirt, and/or debris from the tires of motor vehicles and/or haul trucks, prior to leaving the work site.

214 **GRIZZLY –** No change

215 **HAUL TRUCK -** Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as, but not limited to, trailers or other conveyances ~~which~~ that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.

~~**216** **INTERMITTENT SOURCE** – A fugitive dust generating operation and/or activity that lasts for a duration of less than six consecutive minutes.~~

~~217~~ **216** **MOTOR VEHICLE –** No change

~~218~~ **217** **NORMAL FARM CULTURAL PRACTICE –** No change

~~219~~ **218** **OFF-ROAD VEHICLE –** No change

~~220~~ **219** **OPEN AREAS AND VACANT LOTS -** Any of the following described in ~~subsection 220.1~~ Section 219.1 through ~~subsection 220.4~~ Section 219.4 of this rule. For the purpose of this rule, vacant portions of residential or commercial lots that are immediately adjacent and owned and/or operated by the same individual or entity are considered one ~~vacant~~ open area or vacant lot.

~~220.1~~ **219.1** An unsubdivided or undeveloped tract of land adjoining a developed or ~~a~~ partially developed residential, industrial, institutional, governmental, or commercial area.

~~220.2~~ **219.2** A subdivided residential, industrial, institutional, governmental, or commercial lot~~,~~ ~~which~~ that contains no approved or permitted buildings or structures of a temporary or permanent nature.

~~220.3~~ **219.3** A partially developed residential, industrial, institutional, governmental, or commercial lot.

~~220.4~~ **219.4** A tract of land, in the nonattainment area, adjoining agricultural property.

~~221~~ **220** **OWNER AND/OR OPERATOR** – The person responsible for obtaining an earthmoving permit under Rule 200, Section 305, or any person who owns, leases, operates, controls, or supervises a dust generating operation subject to the requirements of this rule.

~~222~~ **221** **PAVE –** No change

~~223~~ **222** **PUBLIC ROADWAYS** – No change

~~224~~ **223** **ROUTINE –** No change

~~225~~ **224** **SILT–** No change

225 **TRACKOUT/CARRYOUT –** Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved area accessible to the public.

226 **TRACKOUT CONTROL DEVICE -** A gravel pad, grizzly, wheel wash system, or a paved area, located at the point of intersection of an unpaved area and a paved ~~roadway~~ area accessible to the public that controls or prevents vehicular trackout.

227 **UNPAVED HAUL/ACCESS ROAD –** No change

228 **UNPAVED PARKING LOT –** No change

229 **UNPAVED ROAD –** No change

230 **URBAN OR SUBURBAN OPEN AREA –** No change

231 **VACANT LOT –** No change

232 **VACANT PARCEL –** No change

233 **WIND-BLOWN DUST -** Visible emissions, from any disturbed surface area, ~~which~~ that are generated by wind action alone.

234 **WIND EVENT** – No change

235 **WORK SITE –** No change

SECTION 300 – STANDARDS

301 **OPACITY LIMITATION FOR ~~FUGITIVE DUST SOURCES~~ DUST GENERATING OPERATIONS:** The owner and/or operator of a ~~source engaging in dust generating operations~~ dust generating operation shall not allow visible fugitive dust emissions to exceed 20% opacity as tested by methods described in Appendix C of these rules.

301.1 **Wind Event:** Exceedances of the opacity limit that occur due to a wind event shall constitute a violation of the opacity limit. However, it shall be an affirmative defense in an enforcement action if the owner and/or operator demonstrates all of the following conditions:

a. All control measures required were followed and 1 or more of the control measures in ~~Table 2 were~~ Tables 20 & 21 was applied and maintained;

b. The 20% opacity exceedance could not have been prevented by better application, implementation, operation, or maintenance of control measures;

c. The owner and/or operator compiled and retained records, in accordance with Section 502 (Recordkeeping) of this rule; and

d. The occurrence of a wind event on the day(s) in question is documented by records. The occurrence of a wind event must be determined by the nearest Maricopa County Environmental Services Department Air Quality Division monitoring station, from any other certified meteorological station, or by a wind instrument that is calibrated according to manufacturer's standards and that is located at the site being checked.

301.2 No change

301.3 No change

302 STABILIZATION REQUIREMENTS FOR ~~FUGITIVE DUST SOURCES~~ DUST GENERATING OPERATIONS:

302.1 Unpaved Parking Lot: The owner and/or operator of any unpaved parking lot shall not allow visible fugitive dust emissions to exceed 20% opacity, and either:

a. Shall not allow silt loading equal to or greater than 0.33 oz/ft^2 ~~,~~, or

b. Shall not allow the silt content to exceed 8%.

302.2 Unpaved Haul/Access Road:

a. The owner and/or operator of any unpaved haul/access road (whether including at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall not allow visible fugitive dust emissions to exceed 20% opacity, and either:

1. Shall not allow silt loading equal to or greater than 0.33 oz/ft^2; or

2. Shall not allow the silt content to exceed 6%.

b. The owner and/or operator of any unpaved haul/access road (including at a work site that is under construction or a work site that is temporarily or permanently inactive) ~~Shall,~~ shall, as an alternative to meeting the stabilization requirements for an unpaved haul/access road, limit vehicle trips to no more than 20 per day per road and limit vehicle speeds to no

more than 15 miles per hour. If complying with this subsection ~~302.2(b) of this rule~~, the owner and/or operator must include, in a Dust Control Plan, the maximum number of ~~vehicles traveled~~ vehicle trips on the unpaved haul/access roads each day (~~i.e.,~~ including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

302.3 Open Area ~~and~~ And Vacant Lot ~~or~~ Or Disturbed Surface Area: The owner and/or operator of an open area ~~and~~ and/or vacant lot or any disturbed surface area on which no activity is occurring (~~whether~~ including at a work site that is under construction~~, at~~ or a work site that is temporarily or permanently inactive) shall meet at least 1 of the standards described in ~~subsection~~ Sections 302.3(a) through ~~subsection~~ 302.3(g) below, as applicable. Should a disturbed open area and/or vacant lot or any disturbed surface area on which no activity is occurring contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Appendix C of these rules, and include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results. The owner and/or operator of such inactive disturbed surface area shall be considered in violation of this rule if ~~such inactive disturbed surface~~ the area is not maintained in a manner that meets at least 1 of the standards ~~described in subsection 302.3(a) through subsection 302.3(g)~~ listed below, as applicable.

a. Maintain a visible crust; ~~or~~

b. Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher; ~~or~~

c. Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; ~~or~~

d. Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%; ~~or~~

e. Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; ~~or~~

f. Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or

g. Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator of the Environmental Protection Agency (EPA).

302.4 No change

303 DUST CONTROL PLAN REQUIRED:

303.1 The owner and/or operator of a dust generating operation shall submit to the Control Officer a Dust Control Plan with any permit applications that involve earthmoving operations with a disturbed surface area that equals or exceeds 0.10 acre, including both of the following situations:

a. When submitting an application for an earthmoving permit involving earthmoving operations that would equal or exceed 0.10 acre, and

b. Before commencing any routine dust generating operation at a site that has obtained or must obtain a Title V, Non-Title V, or general permit under Regulation II (Permits And Fees) of these rules.

Compliance with this section does not affect an owner and/or operator's responsibility to comply with the other standards of this rule. The Dust Control Plan shall describe all control measures to be implemented before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays.

~~303.1~~ **303.2** A Dust Control Plan shall, at a minimum, contain all the information described in Section 304 of this rule. The Control Officer shall approve, disapprove, or

conditionally approve the Dust Control Plan, in accordance with the criteria used to approve, disapprove or conditionally approve a permit. Failure to comply with the provisions of an approved Dust Control Plan is deemed to be a violation of this rule. Regardless of whether an approved Dust Control Plan is in place or not, the owner and/or operator of a ~~source~~ dust generating operation is still subject to all requirements of this rule at all times. In addition, the owner and/or operator of a source with an approved Dust Control Plan is still subject to all of the requirements of this rule, even if such owner and/or operator is complying with the approved Dust Control Plan.

~~303.2~~ **303.3** At least one primary control measure and one contingency control measure must be identified in the Dust Control Plan for all fugitive dust sources. Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately implement the contingency control measure(s)~~, which may obviate the requirement of submitting a revised Dust Control Plan.~~ If the identified contingency control measure is effective to comply with all of the requirements of this rule, the owner and/or operator need not revise the Dust Control Plan under Section 305 of this rule.

~~303.3 The following subsections, subsection 303.3(a) and subsection 303.3(b) of this rule, describe the permit applications with which a Dust Control Plan must be submitted.~~

~~a. If a person is required to obtain an Earthmoving Permit under Regulation II (Permits And Fees) of these rules, then such person must first submit a Dust Control Plan and obtain the Control Officer's approval of the Dust Control Plan before commencing any dust generating operation.~~

~~b. If a person is required to obtain or has obtained a Title V Permit, a Non Title V, or a General Permit under Regulation II (Permits And Fees) of these rules, then such person must first submit a Dust Control Plan and obtain the Control Officer's approval of the Dust Control Plan before commencing any routine dust generating operation.~~

303.4 A Dust Control Plan shall not be required for any of the following activities:

a. To play on or maintain a ~~ballfield~~ field used for non-motorized sports;

b. For landscape maintenance, which, for the purpose of this rule, does not include grading, trenching, nor or any other mechanized surface disturbing activities.;

c. To establish initial landscapes or to redesign existing landscapes of legally-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, city parks, and county regional parks, ballfields, camp sites, and playgrounds at camp sites; hiking paths, horse trails, and bicycle paths, ballfields, playgrounds at camp sites, and camp sites, which are used exclusively for purposes other than travel by motor vehicles, that are used exclusively for purposes other than travel by motor vehicles.; For (for the purpose of this rule, establishing initial landscapes or redesigning existing landscapes does not include grading, trenching, nor or any other mechanized surface disturbing activities).

304 ELEMENTS OF A DUST CONTROL PLAN: A Dust Control Plan shall contain, at a minimum, all of the following information:

304.1 Name Name(s), address(es), and phone numbers of person(s) responsible for the submittal and implementation of the Dust Control Plan and responsible for the dust generating operation.

304.2 A drawing, on at least 8½" x 11" paper, which that shows:

a. Entire project site/facility boundaries;,

b. Acres to be disturbed with linear dimensions;,

c. Nearest public roads;,

d. North arrow;, and

e. Planned exit locations onto paved public roadways areas accessible to the public.

304.3 Control measures, or a combination thereof, to be applied to all actual and potential fugitive dust sources dust generating operations, before, after, and while conducting

any dust generating operation, including during weekends, after work hours, and on holidays.

a. ~~At least one primary~~ All required control ~~measure~~ measures from Tables 1-21 and at least one contingency control measure must be identified, ~~from Table 1 of this rule,~~ for all ~~fugitive dust sources~~ dust generating operations. Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately implement the contingency control measure(s)~~,~~. ~~which may obviate the requirement of submitting a revised Dust Control Plan~~. If the identified contingency control measure(s) is effective to comply with all of the requirements of this rule, the owner and/or operator need not revise the Dust Control Plan under Section 305 of this rule.

b. Alternatively, a control measure(s) that is not listed in ~~Table 1~~ Tables 1-21 of this rule may be chosen, provided that such control measure(s) is implemented to comply with the standard(s) described in Section 301 and Section 302 of this rule, as determined by the corresponding test method(s), as applicable, and ~~must meet~~ meets other applicable standard(s) set forth in this rule.

c. If complying with ~~subsection~~ Section 302.2(b) (Stabilization Requirements For Fugitive Dust Sources-Unpaved Haul/Access ~~Roads~~ Road) of this rule, the Dust Control Plan must include the maximum number of ~~vehicles traveled~~ vehicle trips on the unpaved haul/access roads each day (~~i.e.,~~ including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

304.4 Dust suppressants to be applied, including all of the following product specifications or label instructions for approved usage:

a. Method, frequency, and intensity of application~~.~~;

b. Type, number, and capacity of application equipment~~.~~; and

c. Information on environmental impacts and approvals or certifications related to appropriate and safe use for ground application.

304.5 Specific surface treatment(s) and/or control measures utilized to control material trackout and sedimentation where unpaved and/or access points join paved ~~public roadways~~ areas accessible to the public.

304.6 For construction projects one acre or larger, except for routine maintenance and repair done under a block permit, a statement disclosing which of the four designated texture(s) of soil described in Appendix F of these rules is naturally present at or will be imported to the dust generating operation. The measured soil content at a particular site shall take precedence over any mapped soil types, and whenever soils have been tested at a particular site, the test results should be relied on rather than the map in Appendix F.

305 DUST CONTROL PLAN REVISIONS:

305.1 If the Control Officer determines that an approved Dust Control Plan has been followed, yet fugitive dust emissions from any ~~given fugitive dust source~~ dust generating operation still exceed standards in Section 301 and Section 302 of this rule, then the Control Officer shall issue a written notice to the owner and/or operator of ~~such source~~ the dust generating operation explaining such determination.

305.2 The owner and/or operator of ~~such source~~ a dust generating operation shall make written revisions to the Dust Control Plan and shall submit such revised Dust Control Plan to the Control Officer within three working days of receipt of the Control Officer's written notice, unless such time period is extended by the Control Officer, upon request, for good cause. During the time that such owner and/or operator is preparing revisions to the approved Dust Control Plan, such owner and/or operator must still comply with all requirements of this rule.

306 CONTROL MEASURES:

306.1 The owner and/or operator of a ~~source~~ dust generating operation shall implement control measures before, after, and while conducting ~~any dust generating~~ operations, including during weekends, after work hours, and on holidays~~.~~, ~~See~~ in accordance with ~~subsection~~ Section 304.3~~, Table 1, and Table 2~~ and Tables 1-21 of this rule.

306.2 For the purpose of this rule, any control measure that is implemented must ~~meet~~ achieve the applicable standard(s) described in ~~Section~~ Sections 301 and ~~in Section~~ 302 of this rule, as determined by the corresponding test method(s), as applicable, and must ~~meet~~ achieve other applicable standard(s) set forth in this rule.

306.3 Failure to comply with the provisions of Section 308 (Work Practices) of this rule, as applicable, and/or of an approved Dust Control Plan, is deemed a violation of this rule.

306.4 Regardless of whether a dust generating operation is in compliance with an approved Dust Control Plan, ~~is in place or not~~, or there is no approved Dust Control Plan, the owner and/or operator of a dust generating operation is still subject to all requirements of this rule at all times. ~~In addition, the owner and/or operator of a dust generating operation with an approved Dust Control Plan is still subject to all of the requirements of this rule, even if such owner and/or operator of a dust generating operation is complying with the approved Dust Control Plan.~~

307 PROJECT INFORMATION SIGN: For all sites with an earthmoving permit that are five acres or larger, except for routine maintenance and repair done under a block permit, ~~The~~ the owner and/or operator ~~of a source~~ shall erect and maintain a project information sign at the main entrance, that is ~~visible to~~ readable by the public~~, of all sites with an Earthmoving Permit that are five acres or larger~~. Such sign shall ~~be a minimum of four feet long by four feet wide,~~ have a white background, have black block lettering ~~which~~ that is at least four inches high, and shall contain at least all of the following information:

307.1 Project name and permit holder name~~; and~~ ,

307.2 Earthmoving Permit number~~;~~,

~~307.2~~ **307.3** Name and phone number of person(s) responsible for conducting the project~~;~~, and

~~307.3~~ **307.4** Text stating: "Dust Complaints? Call Maricopa County Environmental Services Department (insert the current/accurate phone number for the complaint phone line)."

308 WORK PRACTICES: When engaged in the following specific activities, the owner and/or operator of a ~~source~~ dust generating operation shall comply with the following work practices in addition to implementing, as applicable, the control measures described in ~~Table 1~~ Tables 1-21 of this rule. ~~Such work practices shall be implemented to meet the standards described in Section 301 and Section 302 of this rule.~~

308.1 Bulk Material Hauling Off-Site Onto Paved ~~Public Roadways~~ Areas Accessible to the Public: Not withstanding other sections of this rule, the owner and/or operator of a dust generating operation and the owner and/or operator of a haul truck shall do all of the following:

a. Load all haul trucks such that the freeboard is not less than three inches; ~~and~~

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); ~~and~~

c. Cover all haul trucks with a tarp or other suitable closure; and

d. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

308.2 Bulk Material Hauling On-Site Within ~~The~~ the Boundaries ~~Of~~ of The Work Site: When crossing a ~~public roadway~~ paved area accessible to the public ~~upon which the public is allowed to travel~~ while construction is underway, the owner and/or operator of a dust generating operation shall do all of the following:

a. Load all haul trucks such that the freeboard is not less than three inches; ~~and~~

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

c. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site.

Examples of trackout control devices are described in ~~Table 1 (Trackout 1J, 2J, 3J)~~ Table 17 of this rule.

308.3 **~~Spillage,~~ Trackout, Carry-Out, Spillage, and/or Erosion, ~~And/Or Trackout:~~** The owner and/or operator of a dust generating operation shall do all of the following:

a. Install, maintain and use a suitable trackout control device (~~Examples~~ examples of trackout control devices are described in ~~Table 1 (Trackout 1J, 2J, 3J)~~ Table 17 – Trackout Control of this rule) that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such ~~work site~~ operation at all exits onto ~~a~~ paved ~~public roadway~~ areas accessible to the public from both of the following:

(1) ~~From~~ all work sites with a disturbed surface area of ~~five acres~~ two acres or larger~~.~~, and

(2) ~~From~~ all work sites where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day.

b. Clean up ~~spillage,~~ trackout, carry-out, spillage, and/or erosion, ~~and/or trackout~~ on the following time-schedule:

(1) Immediately, when ~~spillage,~~ trackout, carry-out, ~~and/or trackout~~ or spillage extends a cumulative distance of 50 linear feet or more; ~~or~~ and

(2) At the end of the workday, ~~when~~ for all other ~~spillage,~~ trackout, carry-out, spillage, and/or erosion ~~and/or trackout, are other than the spillage, carry-out, erosion, and/or trackout described above, in subsection 308.3(b)(1) of this rule~~.

308.4 **Unpaved Haul/Access Roads:** The owner and/or operator of a dust generating operation shall ~~Implement~~ implement ~~1~~ one or more control measure(s) described in ~~Table 1 (Unpaved Haul/Access Roads 1C through 5C)~~ Table 3 – Unpaved

Haul/Access Roads of this rule, before ~~engaging in the use of~~ using or ~~in the maintenance of~~ maintaining unpaved haul/access roads.

308.5 Easements, Rights-Of-Way, and Access Roads for Utilities (Electricity, Natural Gas, Oil, Water, and Gas Transmission) Associated with Sources that have a Non-Title V Permit, a Title V Permit, and/or a General Permit under These Rules: The owner and/or operator of a dust generating operation shall do at least one of the following:

a. Inside the PM_{10} nonattainment area, restrict vehicular speeds to 15 miles per hour and vehicular trips to no more than 20 per day per road; ~~or~~

b. Outside the PM_{10} nonattainment area, restrict vehicular trips to no more than 20 per day per road; or

c. Implement control measures, as described in ~~Table 1 (Unpaved Haul/Access Roads 1C through 5C)~~ Table 3 – Unpaved Haul/Access Roads of this rule.

308.6 Open Storage Piles: For the purpose of this rule, an open storage pile is any accumulation of bulk material with a 5% or greater silt content which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-96A or other equivalent method approved in writing by the Control Officer and the Administrator of EPA, that the silt content is less than 5%. The owner and/or operator of such dust generating operation shall comply with all of the following:

a. ~~During~~ Prior to and/or while conducting stacking, loading, and unloading operations, comply with one of the following work practices: ~~apply water, as necessary, to maintain compliance with Section 301 of this rule;~~ ~~and~~

(1) Spray material with water, as necessary; or

(2) Spray material with a dust suppressant other than water, as necessary.

b. When not conducting stacking, loading, and unloading operations, comply with one of the following work practices:

(1) Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; ~~or~~

(2) Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent methods ~~as~~ approved by the Control Officer and the Administrator of EPA. For areas ~~which~~ that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent methods approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; ~~or~~

(3) Meet one of the stabilization requirements described in ~~subsection~~ Section 302.3 of this rule; or

(4) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this subsection, ~~subsection 308.6(b)(4)~~, the owner and/or operator must also implement either ~~subsection 308.6(b)(2)~~ Section 308.6(b)(2) or ~~subsection 308.6(b)(3)~~ Section 308.6(b)(3) above.

308.7 Soil Moisture ~~On Disturbed Surface Areas 1 Acre Or Larger~~: If water is the chosen control measure in an approved Dust Control Plan, the owner and/or operator of a dust generating operation shall operate a water application system on-site (e.g., water truck, water hose) while conducting any earthmoving operations on disturbed surface areas 1 acre or larger, unless a visible crust is maintained or the soil is sufficiently damp to prevent loose grains of soil from becoming dislodged.

308.8 Weed Abatement ~~By~~ by Discing ~~Or~~ or Blading: The owner and/or operator of a dust generating operation shall comply with all of the following during weed abatement procedures by discing or blading:

a. Apply water before weed abatement by discing or blading occurs; and

b. Apply water while weed abatement by discing or blading is occurring; and

c. Either:

(1) Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with ~~subsection~~ Section 302.3 of this rule, after weed abatement by discing or blading occurs; or

(2) Establish vegetative ground cover in sufficient quantity, in compliance with ~~subsection~~ Section 302.3 of this rule, after weed abatement by discing or blading occurs.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 DUST CONTROL PLAN POSTING: The owner and/or operator of ~~a source~~ an earthmoving operation shall post a copy of the approved Dust Control Plan in a conspicuous location at the work site, within on-site equipment, or in an on-site vehicle, or shall otherwise keep a copy of the approved Dust Control Plan available on-site at all times. The owner and/or operator of a ~~source~~ dust generating operation that has been issued a Block Permit shall not be required to keep a copy of the 8½" by 11" site drawing according to section 304.2 of this rule ~~plot plan, an element of a Dust Control Plan, on-site~~.

402 No change

SECTION 500 - MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION: To determine compliance with this rule, the following test methods shall be ~~conducted~~ followed:

501.1 Opacity Observations:

a. **Dust Generating Operations:** Opacity observations of a source engaging in dust generating operations shall be conducted in accordance with Appendix C, Section 3 (Time Averaged Methods of Visual Opacity Determination of Emissions from Dust Generating Operations) ~~(Visual Determination Of Opacity Of Emissions From Sources For Time-Averaged Regulations) of these rules, except opacity observations for intermittent sources shall require 12 rather than 24 consecutive readings at 15-second intervals for the averaging time~~.

b. **Unpaved Parking Lot:** Opacity observations of any unpaved parking lot shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

c. **Unpaved Haul/Access Road:** Opacity observations of any unpaved haul/access road (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

501.2 No change

502 RECORDKEEPING:

502.1 Any person who conducts dust generating operations that require a Dust Control Plan shall keep a daily written log recording the actual application or implementation of the control measures delineated in the approved Dust Control Plan (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps).

502.2 Any person who conducts dust generating operations ~~which~~ that do not require a Dust Control Plan shall compile and retain records (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps) that provide evidence of control measure

application, by indicating the type of treatment or control measure, extent of coverage, and date applied.

502.3 Upon verbal or written request by the Control Officer, the log or the records and supporting documentation shall be provided within 48 hours, excluding weekends. If the Control Officer is at the site where requested records are kept, records shall be provided without delay.

503 RECORDS RETENTION: No change

504 TEST METHODS ADOPTED BY REFERENCE: No change

~~**TABLE 1**~~

~~**SOURCE TYPE AND CONTROL MEASURES**~~
~~**Vehicle Use In Open Areas And Vacant Lots:**~~ ~~1A Restrict trespass by installing signs.~~ ~~2A Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.~~
~~**Unpaved Parking Lots:**~~ ~~1B Pave.~~ ~~2B Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with subsection 302.1 of this rule.~~ ~~3B Apply a suitable dust suppressant, in compliance with subsection 302.1 of this rule.~~
~~**Unpaved Haul/Access Roads:** (The control measures listed below (1C-5C) are required work practices, per subsection 308.4 of this rule.)~~ ~~1C Limit vehicle speed to 15 miles per hour or less and limit vehicular trips to no more than 20 per day.~~ ~~2C Apply water, so that the surface is visibly moist and subsection 302.2 of this rule is met.~~ ~~3C Pave.~~ ~~4C Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with subsection 302.2 of this rule.~~ ~~5C Apply a suitable dust suppressant, in compliance with subsection 302.2 of this rule.~~
~~**Disturbed Surface Areas:**~~ ~~**Pre-Activity:**~~

1D Pre-water site to the depth of cuts.

2D Phase work to reduce the amount of disturbed surface areas at any one time.

During Dust Generating Operations:

3D Apply water or other suitable dust suppressant, in compliance with Section 301 of this rule.

4D Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content.

5D Construct fences or 3 foot - 5 foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas that reduce the amount of wind blown material leaving a site. If constructing fences or wind barriers, must also implement 3D or 4D above.

Temporary Stabilization During Weekends, After Work Hours, And On Holidays:

6D Apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.

7D Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.

8D Restrict vehicular access to the area, in addition to either of the control measures described in 6D and 7D above.

Permanent Stabilization (Required Within 8 Months Of Ceasing Dust Generating Operations):

9D Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions, in compliance with subsection 302.3 of this rule.

10D Pave, apply gravel, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.

11D Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.

Open Areas And Vacant Lots:

1E Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

2E Pave, apply gravel, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.

3E Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.

Control measures 1F - 1M below are required work practices and/or methods designed to meet the work practices, per Section 308 (Work Practices) of this rule.

Bulk Material Handling Operations And Open Storage Piles:

During Stacking, Loading, And Unloading Operations:

1F Apply water as necessary, to maintain compliance with Section 301 of this rule; and

When Not Conducting Stacking, Loading, And Unloading Operations:

2F Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; or

3F Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or

4F Meet the stabilization requirements described in subsection 302.3 of this rule; or

5F Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing 5F, must also implement 3F or 4F above.

Bulk Material Hauling/Transporting:

When On-Site Hauling/Transporting Within The Boundaries Of The Work Site When Crossing A Public Roadway Upon Which The Public Is Allowed To Travel While Construction Is Underway:

1G Load all haul trucks such that the freeboard is not less than 3 inches when crossing a public roadway upon which the public is allowed to travel while construction is underway; and

2G Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

3G Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site. Examples of trackout control devices are described in Table 1 (Trackout 1J, 2J, 3J) of this rule; and

When On-Site Hauling/Transporting Within The Boundaries Of The Work Site But Not Crossing A Public Roadway Upon Which The Public Is Allowed To Travel While Construction Is Underway:

4G Limit vehicular speeds to 15 miles per hour or less while traveling on the work site; or

5G Apply water to the top of the load such that the 20% opacity standard, as described in Section 301 of this rule, is not exceeded, or cover haul trucks with a tarp or other suitable closure.

Off-Site Hauling/Transporting Onto Paved Public Roadways:

6G Cover haul trucks with a tarp or other suitable closure; and

7G Load all haul trucks such that the freeboard is not less than 3 inches; and

8G Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

9G Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

Cleanup Of Spillage, Carry Out, Erosion, And/Or Trackout:

1H Operate a street sweeper or wet broom with sufficient water, if applicable, at the speed recommended by the manufacturer and at the frequency(ies) described in subsection 308.3 of this rule; or 2H Manually sweep-up deposits.
Trackout: 1J Install a grizzly or wheel wash system at all access points. 2J At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep. 3J Pave starting from the point of intersection with a paved area accessible to the public roadway and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
Weed Abatement By Discing Or Blading: 1K Pre-water site and implement 3K or 4K below. 2K Apply water while weed abatement by discing or blading is occurring and implement 3K or 4K below. 3K Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule, after weed abatement by discing or blading occurs; or 4K Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule, after weed abatement by discing or blading occurs.
Easements, Rights-Of-Way, And Access Roads For Utilities (Electricity, Natural Gas, Oil, Water, And Gas Transmission) Associated With Sources That Have A Non-Title V Permit, A Title V Permit, And/Or A General Permit Under These Rules: 1L Inside the PM_{10} nonattainment area, restrict vehicular speeds to 15 miles per hour and vehicular trips to no more than 20 per day; or 2L Outside the PM_{10} nonattainment area, restrict vehicular trips to no more than 20 per day; or 3L Implement control measures, as described in Table 1 (Unpaved Haul/Access Roads 1C through 5C) of this rule.
Earthmoving Operations On Disturbed Surface Areas 1 Acre Or Larger: 1M If water is the chosen control measure, operate water application system (e.g., water truck), while conducting earthmoving operations on disturbed surface areas 1 acre or larger.

TABLE 2

Note: Control measures in [brackets] are to be applied only to sources outside the nonattainment area.

SOURCE TYPE AND WIND EVENT CONTROL MEASURES
Dust Generating Operations: 1A Cease dust generating operations for the duration of the condition/situation/event when the 60-minute average wind speed is greater than 25 miles per hour. If dust generating operations are ceased for the remainder of the work day, stabilization measures must be implemented; or 2A Apply water or other suitable dust suppressant twice [once] per hour, in compliance with Section 301 of this

~~rule; or~~

~~3A Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or~~

~~4A Construct fences or 3 foot - 5 foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas that reduce the amount of wind-blown material leaving a site. If implementing 4A, must also implement 2A or 3A above.~~

~~**Temporary Disturbed Surface Areas (After Work Hours, Weekends, Holidays):**~~

~~1B Uniformly apply and maintain surface gravel or dust suppressants, in compliance with subsection 302.3 of this rule; or~~

~~2B Apply water to all disturbed surface areas three times per day. If there is any evidence of wind-blown dust, increase watering frequency to a minimum of four times per day; or~~

~~3B Apply water on open storage piles twice [once] per hour, in compliance with subsection 302.3 of this rule; or~~

~~4B Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; or~~

~~5B Utilize any combination of the control measures described in 1B, 2B, 3B, and 4B above, such that, in total, these control measures apply to all disturbed surface areas.~~

Table 1

Vehicle Use In Open Areas And Vacant Lots

a. An owner and/or operator must implement one of the following control measures:

1. Restrict trespass by installing signs; or
2. Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.

Table 2

Unpaved Parking Lots

a. An owner and/or operator must implement one of the following control measures:

1. Pave;
2. Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Section 302.1 of this rule; or
3. Apply a suitable dust suppressant in compliance with Section 302.1 of this rule.

b. Suggested additional control measure for contingency plans:

1. Limit vehicle speeds to 15 m.p.h. on the site.

Table 3

Unpaved Haul/Access Roads

a. An owner and/or operator must implement one of the following control measures:

1. Limit vehicle speed to 15 m.p.h or less and limit vehicular trips to no more than 20 day;
2. Apply water, so that the surface is visibly moist in compliance with Section 302.2 of this rule;
3. Pave;
4. Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Section 302.2 of this rule; or
5. Apply a suitable dust suppressant, in compliance with Section 302.2 of this rule.

Table 4

Open Areas And Vacant Lots

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:

1. Pave, apply gravel, or apply a suitable dust suppressant;
2. Establish vegetative ground cover in sufficient quantity; or
3. Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

Table 5

Disturbed Surface Areas – Pre-Activity Work Practices

a. Before activity begins, an owner and/or operator must implement one of the following control measures:

1. Pre-water site to depth of cuts, allowing time for penetration; or
2. Phase work to reduce the amount of disturbed surface areas at any one time.

Table 6

Disturbed Surface Areas – Work Practices During Operations

a. During operations, an owner and/or operator must implement one of the following control measures:

1. Apply water or other suitable dust suppressant, in compliance with Section 301 of this rule;
2. Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent method as approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent method approved by the

Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or

3. Implement (a)(1) or (a)(2) above and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of windblown material leaving a site.

b. Suggested additional control measure for contingency plans:

1. Limit vehicle speeds to 15 m.p.h on the work site.

Table 7

Disturbed Surface Areas – Temporary Stabilization (Up To 8 Months)

During Weekends, After Work Hours, And On Holidays

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:

1. Pave, apply gravel, or apply a suitable dust suppressant;
2. Establish vegetative ground cover in sufficient quantity; or
3. Implement (a)(1) or (a)(2), above, and restrict vehicular access to the area.

Table 8

Disturbed Surface Areas – Permanent Stabilization

(Required Within 8 Months Of Ceasing Dust Generating Operations)

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:

1. Pave, apply gravel, or apply a suitable dust suppressant;
2. Establish vegetative ground cover in sufficient quantity; or
3. Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

Table 9

Blasting Operations

a. An owner and/or operator must implement all of the following control measures:

1. In wind gusts above 25 m.p.h., discontinue blasting; and
2. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

Table 10

Demolition Activities

a. An owner and/or operator must implement all of the following control measures:

1. Stabilize demolition debris. Apply water to debris immediately following demolition activity; and
2. Stabilize surrounding area immediately following demolition activity. Water all disturbed soil surfaces to establish a crust and prevent wind erosion of soil.

b. Suggested additional control measure for contingency plans:

1. Thoroughly clean blast debris from paved and other surfaces following demolition activity.

Table 11

Bulk Material Handling Operations

Work Practices For Stacking, Loading, And Unloading Operations

a. An owner and/or operator must implement one of the following control measures:

1. Spray material with water, as necessary, prior to stacking, loading, and unloading, and/or while stacking, loading, and unloading; or
2. Spray material with a dust suppressant other than water, as necessary, prior to stacking, loading, and unloading, and/or while stacking, loading, and unloading.

b. Suggested additional control measures for contingency plans:

1. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
2. Remove material from the downwind side of the storage pile when safe to do so.
3. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.

Table 12

Open Storage Piles

When Not Conducting Stacking, Loading, And Unloading Operations

a. An owner and/or operator must implement one of the following control measures:

1. Cover open storage piles with tarps, plastic, or other material such that the coverings will not be dislodged by wind;
2. Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent methods approved by the Control Officer and the Administrator of the EPA; or for areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent methods approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the soil moisture content;

3. Meet the stabilization requirements described in Section 302.3 of this rule; or

4. Implement (a)(2) or (a)(3), above, and construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%.

Table 13

Bulk Material Hauling/Transporting Within The Boundaries Of The Work Site

When Crossing A Paved Area Accessible To The Public While Construction Is Underway

a. An owner and/or operator must implement all of the following control measures:

1. Load all haul trucks such that the freeboard is not less than 3 inches when crossing a paved area accessible to the public while construction is underway;
2. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and
3. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site.

b. Suggested additional control measure for contingency plans:

1. Limit vehicle speeds to 15 m.p.h. on the work site.

Table 14

Bulk Material Hauling/Transporting When On-Site Hauling/Transporting

Within The Boundaries Of The Work Site But Not Crossing A Paved Area Accessible To The Public

a. An owner and/or operator must implement one of the following control measures:

1. Limit vehicular speeds to 15 m.p.h. or less while traveling on the work site;
2. Apply water to the top of the load in compliance with Section 301 of this rule; or
3. Cover haul trucks with a tarp or other suitable closure.

Table 15

Bulk Material Hauling/Transporting Off-Site Hauling/Transporting

Onto Paved Areas Accessible To The Public

a. An owner and/or operator must implement all of the following control measures:

1. Cover haul trucks with a tarp or other suitable closure;
2. Load all haul trucks such that the freeboard is not less than 3 inches;
3. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

4. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

Table 16

Clean Up Of Trackout, Carry Out, Spillage, And Erosion

a. An owner and/or operator must implement one of the following control measures:

1. Operate a street sweeper or wet broom with sufficient water, at the speed recommended by the manufacturer and at the frequency(ies) described in Section 308.3 of this rule; or
2. Manually sweep up deposits in compliance with Section 308.3 of this rule.

Table 17

Trackout Control

a. An owner and/or operator must implement all of the following control measures:

1. Immediately clean up trackout that exceeds 50 feet. All other trackout must be cleaned up at the end of the workday; and
2. In accordance with Section 308.3(a), prevent trackout by implementing one of the following control measures:
   - i. At all access points, install a grizzly or wheel wash system.
   - ii. At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep, in compliance with Section 213 of this rule.
   - iii. Pave starting from the point of intersection with a paved area accessible to the public and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.

b. Suggested additional control measures for contingency plans:

1. Clearly establish and enforce traffic patterns to route traffic over selected trackout control devices.
2. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.
3. Pave construction activity roadways as soon as possible.

Table 18

Weed Abatement By Discing Or Blading

a. An owner and/or operator must implement all of the following control measures:

1. Pre-water site;
2. Apply water while weed abatement by discing or blading is occurring; and
3. Stabilize area by implementing either one of the following:
   - i. Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs; or

ii. Establish vegetative ground cover in sufficient quantity, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs.

b. Suggested additional control measures for contingency plans

1. Limit vehicle speeds to 15 m.p.h. during discing and blading operations.

Table 19

Easements, Rights-Of-Way, And Access Roads For Utilities (Electricity, Natural Gas, Oil, Water, And Gas Transmission) Associated With Sources That Have A Non-Title V Permit, A Title V Permit, And/Or A General Permit Under These Rules

a. An owner and/or operator must implement one of the following control measures:

1. Inside the PM10 nonattainment area, restrict vehicular speeds to 15 m.p.h. and vehicular trips to no more than 20 per day per road;
2. Outside the PM10 nonattainment area, restrict vehicular trips to no more than 20 per day per road; or
3. Implement control measures, as described in Table 3 (Unpaved Haul/Access Roads) of this rule.

Note: For Tables 20 & 21, control measures in [brackets] are to be applied only to dust generating operations outside the nonattainment area.

Table 20

Wind Event Control Measures-Dust Generating Operations

a. An owner and/or operator must implement one of the following control measures:

1. Cease dust generating operations for the duration of the condition/situation/event when the 60-minute average wind speed is greater than 25 m.p.h. and if dust generating operations are ceased for the remainder of the work day, stabilize the area;
2. Apply water or other suitable dust suppressant at least twice [once] per hour, in compliance with Section 301 of this rule;
3. Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent method as approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent method approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or
4. Implement (a)(2) or (a)(3), above, and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of wind-blown material leaving a site.

Table 21

Wind Event Control Measures-Temporary Disturbed Surface Areas

(After Work Hours, Weekends, Holidays)

a. An owner and/or operator must implement one of the following control measures:

1. Uniformly apply and maintain surface gravel or dust suppressants, in compliance with Section 302.3 of this rule;
2. Apply water to all disturbed surface areas 3 times per day. If there is any evidence of wind-blown dust, increase watering frequency to a minimum of 4 times per day;
3. Apply water on open storage piles at least twice [once] per hour, in compliance with Section 302.3 of this rule; or
4. Cover open storage piles with tarps, plastic, or other material such that wind will not remove the covering(s).

b. Suggested additional control measures for contingency plans:

1. Implement a combination of the control measures listed in (a)(1) through (a)(4), above.

Adopted 06/16/99
Revised 02/16/00

APPENDIX C
FUGITIVE DUST TEST METHODS

INDEX

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

APPENDIX C
FUGITIVE DUST TEST METHODS

1. No change

2. No change

3. TIME AVERAGED METHODS OF VISUAL OPACITY DETERMINATION ~~OF OPACITY~~ OF EMISSIONS FROM ~~SOURCES FOR TIME-AVERAGED REGULATIONS~~ DUST GENERATING OPERATIONS

3.1 Applicability – This method is applicable for the determination of opacity ~~determination of the opacity of emissions~~ of fugitive dust plumes from ~~sources of visible emissions for time averaged regulations~~ dust generating operations. A time-averaged regulation is any regulation that requires averaging visible emission data to determine the opacity of visible emissions over a specific time period.

3.2 No change

3.3 No change

3.3.1 No change

~~**3.3.2** Procedures For Fugitive Dust Emissions. These procedures are applicable for the determination of the opacity of fugitive dust emissions by a qualified observer. The qualified observer should do the following:~~

~~**a.** Position. Stand at a position at least 5 meters from the fugitive dust source in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Consistent as much as possible with maintaining the above requirements, make opacity observations from a position such that the line of sight is approximately perpendicular to the plume and wind direction. The observer may follow the fugitive dust plume generated by mobile earthmoving equipment, as long as the sun remains oriented in the 140° sector to the back. As much as possible, if multiple plumes are involved, do not include more than one plume in the line of sight at one time.~~

~~**b.** Field Records. Record the name of the site, fugitive dust source type (i.e., pile, material handling (i.e., transfer, loading, sorting)), method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the fugitive dust source. Also, record the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the fugitive dust source, and color of the plume and type of background on the visible emission observation from when opacity readings are initiated and completed.~~

~~**c.** Observations. Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of sight. For storage piles, make opacity observations approximately 1 meter above the surface from which the plume is generated. The initial observation should begin immediately after a plume has been created above the~~

~~surface involved. Do not look continuously at the plume, but instead observe the plume momentarily at 15 second intervals. For fugitive dust from earthmoving equipment, make opacity observations approximately 1 meter above the mechanical equipment generating the plume.~~

~~**d.** Recording Observations. Record the opacity observations to the nearest 5% every 15 seconds on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 15 second period. If a multiple plume exists at the time of an observation, do not record an opacity reading. Mark an "x" for that reading. If the equipment generating the plume travels outside of the field of observation, resulting in the inability to maintain the orientation of the sun within the 140° sector or if the equipment ceases operating, mark an "x" for the 15 second interval reading. Readings identified as "x" shall be considered interrupted readings.~~

~~**e.** Data Reduction For Time Averaged Regulations. For each set of 12 or 24 consecutive readings, calculate the appropriate average opacity. Sets must consist of consecutive observations, however, readings immediately preceding and following interrupted readings shall be deemed consecutive and in no case shall two sets overlap, resulting in multiple violations.~~

3.3.2 To determine the opacity of non-continuous dust plumes caused by activities including, but not limited to, bulk material loading/unloading, non-conveyorized screening, or trenching with backhoes:

a. Position: Stand at least 25 feet from the dust generating operation in order to provide a clear view of the emissions with the sun oriented in the 140º sector to the back. Choose a discrete portion of the operation for observation, such as the unloading point, not the whole operation. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

b. Initial Fallout zone: The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

c. Field Records: Note the following on an observational record sheet:

1. Location of dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;

2. Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and observer's estimated distance and direction to the location of the dust generating operation;

3. Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds); and

4. Color of the plume and type of background.

d. Observations: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make two observations per discrete activity, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

e. Recording Observations: Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 5-second period. Repeat observations until you have recorded at least a total of 12 consecutive opacity readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed one hour. Observations immediately preceding and following interrupted

observations can be considered consecutive (e.g., vehicle traveled in front of path, plume doubled-over).

f. Data Reduction: Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating operation is in compliance with the opacity standard described in Rule 310 of these rules.

3.3.3 To determine the opacity of continuous dust plumes caused by equipment and activities including but not limited to graders, trenchers, paddlewheels, blades, clearing, leveling, and raking

a. Position: Stand at least 25 feet from the dust generating operation to provide a clear view of the emissions with the sun oriented in the 140º sector to your back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction.

b. Dust Plume: Evaluate the dust plume generation and determine if the observations will be made from a single plume or from multiple related plumes.

1. If a single piece of equipment is observed working, then all measurements should be taken off the resultant plume as long as the equipment remains within the 140º sector to the back.

2. If there are multiple related sources, or multiple related points of emissions of dust from a particular activity, or multiple pieces of equipment operating in a confined area, opacity readings should be taken at the densest point within the discrete length of equipment travel path within the 140º sector to the back. Readings can be taken for more than one piece of equipment within the discrete length of travel path within the 140º sector to the back.

c. Initial Fallout Zone: The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume.

Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

d. Field Records: Note the following on an observational record sheet:

1. Location of the dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;

2. Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and observer's estimated distance and direction to the location of the dust generating operation; and

3. Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds).

e. Observations: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations at a point beyond the fallout zone. The observations should be made at the densest point. Observations will be made every 10 seconds until at least 12 readings have been recorded. Do not look continuously at the plume, but observe the plume momentarily at 10-second intervals. If the equipment generating the plume travels outside the field of observation or if the equipment ceases to operate, mark an "x" for the 10-second reading interval. Mark an "x" when plumes are stacked or doubled, either behind or in front, or become parallel to line of sight. Opacity readings identified as "x" shall be considered interrupted readings.

f. Recording Observations: Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 10-second period.

g. Data Reduction: Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating

operation is in compliance with the opacity standard described in Rule 310 of these rules.

3.4 No Change

APPENDIX F – SOIL DESIGNATIONS

APPENDIX F
SOIL DESIGNATIONS

INDEX

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

APPENDIX F
SOIL DESIGNATIONS

1. SOIL DESCRIPTIONS

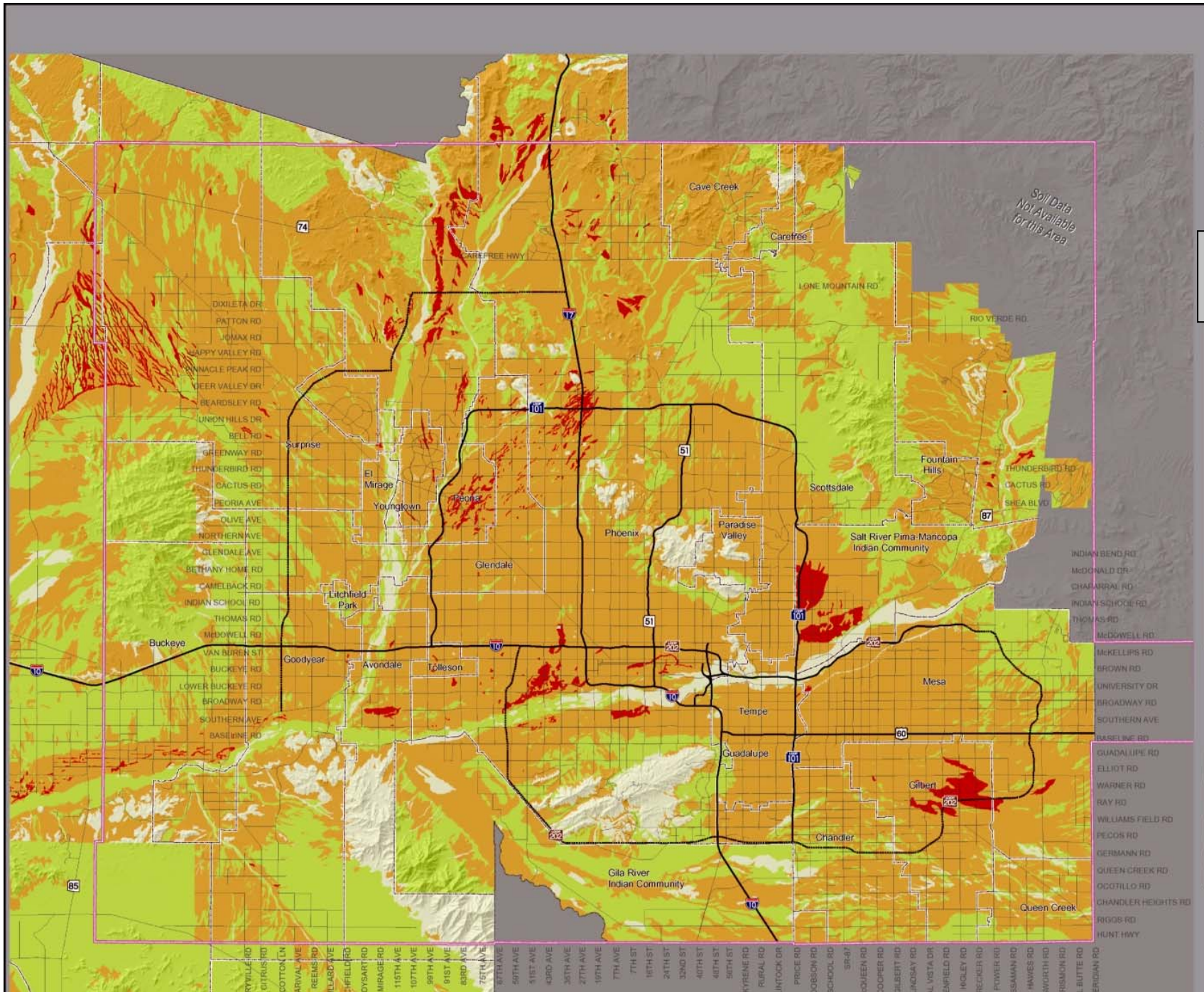
a. VERY SLIGHT SOIL TEXTURE – includes very fine sand, fine sand, sand, coarse sand, loamy very fine sand, loamy fine sand, loamy sand.

b. SLIGHT SOIL TEXTURE – includes very fine sandy loam, fine sandy loam, sandy loam, course sandy loam.

c. MODERATE SOIL TEXTURE – includes loam, silt loam, clay loam, silty clay loam, sandy clay loam.

d. SEVERE SOIL TEXTURE – includes clay, silty clay, sandy clay.

2. SOIL MAP


Soil Texture
within PM1
Nonattainme
Area
Maricopa County
Arizona
Note:
Inconsistencies in soil texture acro
soil survey boundaries may exist d
to the varying age of surveys and,
the survey area land use driving t
data collection criteria.
Soil Texture:
Very Fine Sand, Fine Sand, Sa
Coarse Sand, Loamy Very Fin
Loamy Fine Sand, Loamy San
Rating: Very Slight
Soil Texture: Very Fine Sandy
Fine Sandy Loam, Sandy Loa
Coarse Sandy Loam
Rating: Slight
Soil Texture: Loam, Silt Loam,
Clay Loam, Silty Clay Loam,
Sandy Clay Loam
Rating: Moderate
Soil Texture: Clay,
Silty Clay, Sandy Clay
Rating: Severe
PM10 Nonattainment
Area
Municipal Planning
Area
Soil Data Source:
National SSURGO Database
USDA-NRCS Soil Survey Division
http://www.ftw.nrcs.usda.gov/ssur_data.html
While every effort has been made to ensure th
accuracy of this information, the Maricopa Asso
of Governments makes no warranty, expresse
as to its accuracy and expressly disclaims liab
accuracy thereof.
Maricopa
Area of Detail
Soil Data
Not Available
for this Area
Cave Creek
Carefree
Surprise
El
Mirage
Youngtown
Peoria
Glendale
Litchfield
Park
Buckeye
Goodyear
Avondale
Tolleson
Phoenix
Scottsdale
Fountain
Hills
Paradise
Valley
Salt River Pima-Maricopa
Indian Community
Mesa
Tempe
Guadalupe
Gilbert
Chandler
Gila River
Indian Community
Queen Creek
CAREFREE HWY
LONE MOUNTAIN RD
RIO VERDE RD
DIXILETA DR
PATTON RD
JOMAX RD
HAPPY VALLEY RD
PINNACLE PEAK RD
DEER VALLEY DR
BEARDSLEY RD
UNION HILLS DR
BELL RD
GREENWAY RD
THUNDERBIRD RD
CACTUS RD
PEORIA AVE
OLIVE AVE
NORTHERN AVE
GLENDALE AVE
BETHANY HOME RD
CAMELBACK RD
INDIAN SCHOOL RD
THOMAS RD
McDOWELL RD
VAN BUREN ST
BUCKEYE RD
LOWER BUCKEYE RD
BROADWAY RD
SOUTHERN AVE
BASELINE RD
THUNDERBIRD RD
CACTUS RD
SHEA BLVD
INDIAN BEND RD
McDONALD DR
CHAPARRAL RD
INDIAN SCHOOL RD
THOMAS RD
McDOWELL RD
McKELLIPS RD
BROWN RD
UNIVERSITY DR
BROADWAY RD
SOUTHERN AVE
BASELINE RD
GUADALUPE RD
ELLIOT RD
WARNER RD
RAY RD
WILLIAMS FIELD RD
PECOS RD
GERMANN RD
QUEEN CREEK RD
OCOTILLO RD
CHANDLER HEIGHTS RD
RIGGS RD
HUNT HWY
74
17
101
51
87
10
202
60
85